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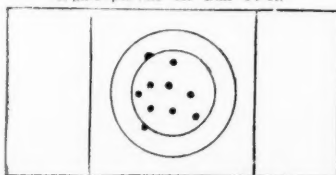
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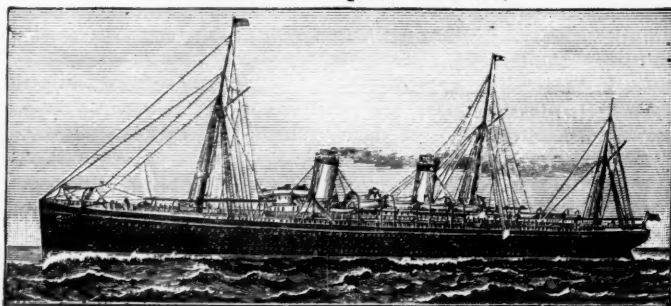
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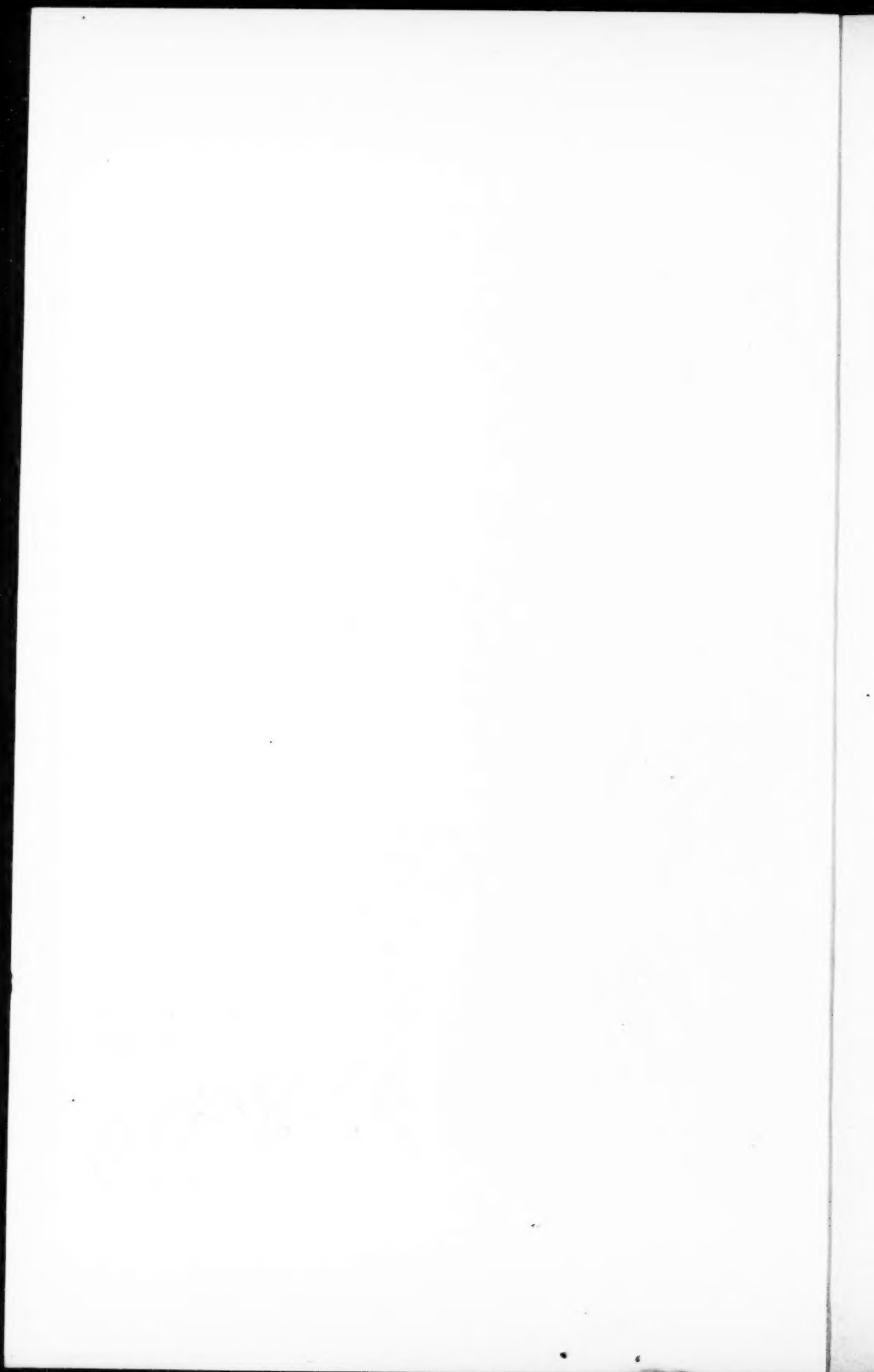
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LIEUT.-GENERAL RICHARD HUSSEY, First LORD VIVIAN, G.C.B., G.C.H.
(Colonel of the 1st (Royal) Regiment of Dragoons, 1837-1842).



THE JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

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[Authors alone are responsible for the contents of their respective Papers.]

LIEUTENANT-GENERAL RICHARD HUSSEY, FIRST LORD VIVIAN, G.C.B., G.C.H.

RICHARD HUSSEY VIVIAN, a distinguished cavalry officer, was the eldest son of John Vivian, of Truro, Warden of the Stanaries; his mother was the only daughter and co-heir of the Rev. Richard Cranch, Vicar of St. Clement's, near Truro. He was born at Truro on the 28th July, 1775, and was educated at Harrow from 1787 to 1790. He was then sent to Exeter College, Oxford, for a year with a view to his taking up the law, but his inclinations did not lie in the direction selected for him by his father, and he purchased an ensigncy in the 20th Foot on the 31st July, 1793. It is doubtful if he ever joined this regiment: for on the 20th October, 1793, he obtained a lieutenancy in an Independent Company of Foot, from which, on the 30th of the same month, he exchanged into the 54th Regiment; and was serving under the Earl of Moira on the coast of France from October to the following spring.

On the 7th May, 1794, he obtained a company in the 28th Regiment, which formed a portion of the reinforcement sent to the Duke of York in the Netherlands. He embarked with the regiment at Ostend, and accompanied Lord Moira's force in its rapid and successful march to join the Duke of York. The 28th distinguished themselves in the sortie from Nimeguen, and young Vivian was left in the place with a picket of the regiment, in conjunction with others, to hold it after the retreat of the army. He was present in the affair of the 8th January, 1795, at Geldermalsen, and in several slight skirmishes of outposts. He returned to England in June, 1795, and at the end of the year sailed with his regiment for the West Indies under Admiral Christian; but the majority of the transports were, in consequence of bad weather, compelled to return. In August, 1796, he embarked with the 28th for Gibraltar, where he served until, in August, 1798, he exchanged to the 7th Light

Dragoons, then commanded by Lord Paget, afterwards Marquis of Anglesea. He embarked with the 7th for Holland in the beginning of September, 1799, and was present at the battles of Bergen and Egmont-op-Zee, and several minor skirmishes, returning to England with his regiment in December, 1799. On the 9th March, 1803, he was promoted to a majority in the regiment, and on 28th September, 1804, to a lieutenant-colonelcy in the 25th Light Dragoons, from which he exchanged back to the 7th Light Dragoons on the 1st December. During the time the regiment was quartered in Norfolk in 1803, he distinguished himself by jumping into the sea at Great Yarmouth in full uniform, and, at considerable risk, saving a trooper from drowning.

The war in the Peninsula gave to Hussey Vivian the opportunity of displaying those qualities which were destined to bring him such distinction as a brilliant officer of cavalry. In October, 1808, he embarked at Portsmouth for Portugal, in command of the 7th Hussars; and arrived at Corunna on the 5th November. The regiment marched by squadrons to Astorga, from whence it proceeded, with the 10th and 15th Hussars, towards Salamanca, to join Sir John Moore, who was pushing forward from Portugal to menace the French lines. Moore's intention was to draw Napoleon from the capital and give time for the Southern provinces of Spain to organise their means of resistance, and for the discomfited Spanish armies to re-assemble. It is known with what boldness and ability this diversion was executed, and how it surprised Napoleon. The 7th Hussars, under Vivian, were employed in the enterprise, and a picket of the regiment was engaged on the 21st December, with the 10th and 15th Hussars under Lieut.-General Lord Paget, in driving a body of French dragoons from Sahagun. About twenty of the enemy were killed, and thirteen officers and 154 men taken prisoners, in a sharp sword fight which lasted about twenty minutes.

During the retreat of the British Army to Corunna the cavalry remained in Benevente, and had parties watching the fords of the little river Esla. Soon after daybreak on the 29th December, 600 cavalry of the French Imperial Guard crossed the stream and advanced into the plain; the British detachments retired fighting, and a picket of the 7th Hussars was sharply engaged. Being joined by part of the 3rd Hussars of the King's German Legion, they attacked the French leading squadrons. The pickets that were engaged united, and the whole charged, the 10th Hussars supporting in the most perfect manner. Fifty-five killed and wounded Frenchmen lay on the plain, their General—Lefebvre-Desnouettes, whose scabbard and tache are in the museum of the R.U.S. Institution—and several other officers were taken prisoners, and many of those who escaped across the river were wounded. The picket of the 7th Hussars suffered severely, nearly every man being either killed or wounded. The 7th Hussars, with the other hussar regiments, were subsequently employed during the remainder of the retreat chiefly in the rear of the army. And when the British withdrew from their position at Lugo, the regiment was left behind to keep up the bivouac fires and cover the retreat. It

formed the rear guard until the army arrived within three leagues of Corunna. The 7th, and especially the horses, suffered severely from the cold and want of provisions, and, on arrival at Corunna, it mustered 205 horses only out of 680 which had marched from that port about two months before. In all these operations Vivian proved himself a capable commander, and perhaps the most remarkable feature in the campaign ending with the embarkation at Corunna was the uniform success that attended the operations of the cavalry. They defeated the French in every single encounter, and Sir John Moore said it was "impossible to say too much in their praise." Lieut.-Colonel Vivian accompanied the 7th Hussars to England in January, 1809, and was awarded the Peninsula gold medal for the actions of Sahagun and Benevente.

On 20th February, 1812, Hussey Vivian was promoted to the rank of Colonel in the Army, and was shortly afterwards appointed Equerry to H.R.H. The Prince Regent, afterwards George IV.

On 10th August, 1813, Colonel Vivian embarked a second time for the Peninsula in command of the 7th Hussars. Eight troops landed at Bilbao on the 1st September, and in the following month when two additional troops from England arrived, the regiment joined Lord Edward Somerset's brigade of Wellington's army, and supported the infantry at the passage of the Bidassoa.

In command of a brigade composed of the 13th and 14th Light Dragoons, he accompanied Sir Rowland Hill's corps at the passage of the Nive. On the 13th December, the brigade was engaged with the French light cavalry, under Pierre Soult, at Hasparen. Sir William Napier, in his history of the Peninsula War, rather severely criticises Hussey Vivian's conduct of this action. But Napier was not infallible, and his account, founded on the evidence of Major W. Brotherton, who commanded the 14th Light Dragoons on the occasion, was, as he subsequently admitted, "in some measure wrong," and he promised to set the matter right in any future editions of his work.

After reposing for a short time in quarters during the severe winter, the army resumed operations in the middle of February, 1814, by which time Vivian had been appointed to the command of a brigade composed of the 18th Hussars, and the 1st Hussars King's German Legion. Wellington's first object in the campaign was to drive the enemy from their line on the Bidouze, and force them from the whole country on the left of the Adour. And when Sir Rowland Hill's corps was sent to turn the enemy's left and cut off their communication with St.-Jean-Pied-de-Port, Colonel Vivian's brigade remained with Marshal Beresford's corps in observation on the Lower Bidouze. On the 26th March, Vivian's Hussars crossed the Gave de Pau and moved towards Orthes on the enemy's right, in the course of which he was engaged in some skirmishes with the French cavalry.

On the following day Vivian was present at the battle of Orthes. His brigade accompanied the left wing of the army under Beresford in its attempt to turn the enemy's right, and later in the day supported Anson's

and Ross's brigades, and secured the ground beyond St. Boës. Colonel Vivian's conduct in the battle earned for him the approbation of Sir William Beresford, and he was awarded a clasp to his gold Peninsula medal.

Colonel Vivian entered Bordeaux with Beresford on the 12th March, and subsequently took part in the combat of Tarbes. For his conduct in the affair with the French cavalry at the bridge of St. Martyn-de-la-Touche, on the 28th March, he was highly commended by Sir Stapleton Cotton and Lord Wellington, but Napier on insufficient evidence misrepresents him.

Colonel Vivian took a prominent part in the action at the bridge of Croix d'Orade on the 8th April, in which the 18th Hussars, led by Major J. Hughes, made a gallant attack upon a superior body of the enemy's cavalry and drove them through the village. About 100 prisoners were taken, and Wellington gained possession of an important bridge over the river Ers, by which it was necessary to pass in order to attack the enemy's position. Colonel Vivian was prevented from taking part in the brilliant charge made by the 18th Hussars. He had just given the order for their advance when he was severely wounded by a carbine shot, which smashed the bone of his arm. "Go on 18th, my arm is broken. I am sorry I cannot go with you," had scarcely escaped him, when he fainted, and was lifted off his horse, placed on a door and carried to the rear. Lord Wellington very favourably mentioned Colonel Vivian in his despatch after the action, he was thanked in Cavalry Orders by Sir Stapleton Cotton, and the officers of the 18th Hussars despatched the following letter to him the day after the action:—"Dear Sir,—In proportion to the gratitude we entertain for the occasion you obtained for us yesterday of meriting your approbation, is the regret we feel, that it should have deprived us, we trust but for a short time, of your continued protection. Although so much above any consequence our compliments and congratulations would give you, yet, with our condolence, permit us to say, we feel and justly appreciate the vigilance, activity, and great gallantry, with which, on all occasions, and on this occasion particularly, you have sought our honour. As a memorial and tribute of our gratitude, we request that you do us the honour to accept a sword which, God grant, you may be enabled to wield at the head of your brigade." The sword, which was presented when the regiment returned to England a few months later, bore on one side the inscription:—"Croix d'Orade, 8th April, 1814," and on the reverse:—"The officers of the 18th Hussars express by this token their regard for, and confidence in, Major-General R. H. Vivian, who was wounded at the head of their regiment."

In face of these facts Napier takes upon himself to say:—"The credit of this brilliant action was given to Colonel Vivian in the despatch, incorrectly, for that officer was wounded by a carbine shot previous to the charge at the bridge: the attack was conceived and conducted entirely by Major Hughes of the 18th." Colonel H. E. Malet, in his history of the present 18th Hussars, quotes Napier without comment. Indeed, throughout his book, Colonel Malet accepts Napier as gospel without enquiry, and he

gives the fullest credence to the historian's version of the action at Croix d'Orade, whereas it was founded on the sole evidence of Major Hughes. A perusal of the correspondence which ensued on the subject in 1840 and 1841 will convince most people that Colonel Vivian did conceive and direct the attack, and that only his wound prevented his personally conducting it. Major Hughes did, what hundreds of others did during the war—he gallantly carried out an order conceived and directed by a superior officer.

Colonel Vivian returned to England in June, on the 4th of which month he was, at the age of thirty-eight, promoted to the rank of major-general, and in January, 1815, nominated a Knight Commander of the Bath. He shortly afterwards was appointed to the command of the Sussex District. Major-General Vivian's promotion necessitated his relinquishing his connection with the 7th Hussars, to the great regret of all ranks of the regiment. Colonel Sir Edward Kerrison and the officers, to show their affection and high appreciation of his bravery and efficient services, presented him with a handsome piece of plate, valued at three hundred guineas.

On the general renewal of hostilities in 1815, Sir Hussey Vivian was, on the 10th March, entrusted by Wellington with the command of the Sixth, or Light Cavalry Brigade, composed of the 10th and 18th Hussars, and 1st Hussars King's German Legion. He arrived at Ostend on the 21st April, and his brigade, with the whole of the British cavalry, was inspected by the Duke of Wellington, in the presence of Blücher, on the 29th May.

On 15th June, Sir Hussey Vivian dined with the Duke of Wellington at Brussels, and in the evening attended the ball given by the Duchess of Richmond. Here the Duke received reports of the advance of the French, and, calling the Divisional and Brigade Commanders round him, told them to be prepared to move in the morning. Before one o'clock Vivian left the ball-room and repaired to his brigade, which marched at daybreak towards Nivelles; *en route* he received orders to continue the march on Quatre Bras, where he threw out his pickets and skirmished on the field of battle. In the retreat on June 17th, the Hussar Brigade formed the rear portion of the left cavalry column. It had some skirmishing with the French cavalry previous to crossing the Genappe, or Dyle, river at the bridge of Thuy, where the advance of the latter was checked, and the brigade then marched to the position at Waterloo without further molestation.

On the night before the great battle both armies bivouacked in fields of standing crops, which were saturated with moisture. The British bivouacs were knee-deep in mud, the horses, having trampled the crops under foot, and most of the riders slept at their horses' heads with an arm passed through the reins. On the 18th, Vivian's Hussar Brigade, which had left its uncomfortable quarters about 10 a.m., was posted on the extreme left of the line, where it remained until the advance of the Prussians rendered its presence there no longer necessary. The brigade was then moved to the immediate right of the Brussels—

Genappe road, and was drawn up in rear of the infantry just at the time that several small squares of foreign troops were giving way. And here it was exposed, for half-an-hour, to a tremendous fire of shot, shell, and musketry. Sometime after 5.30, Vivian's Hussars moved to the centre of the position, and, on the repulse of the Imperial Guard about nightfall, were ordered by Wellington to the front. They moved round by the right of Maitland's Guards, and advanced towards the French.

The smoke at this time was so thick that Sir Hussey Vivian could see nothing; but from the fire and the shouting further to the Eastward it was apparent that the French were falling back. When the brigade got to the low ground, the Brigadier saw in front of him crowds of scattered fugitives, and two or three squares of well-formed infantry, flanked on either side by cavalry and artillery. On arriving about half way, the regiments were ordered by Vivian to form line on their leading half-squadrons, the 10th Hussars in front, the 18th Hussars and 1st German Hussars in support. The 10th, led by Vivian, who changed his horse for a white troop horse of that regiment, attacked a superior force of French cuirassiers and lancers, and overthrew and dispersed them. Leaving the 10th to reform, he galloped back to bring up the 18th Hussars to continue the work so well begun. He was attacked on the way by a French cuirassier, and as his right arm was in a sling from the wound received the previous year at Croix d'Orade, could only defend himself with his left; but with it he contrived to thrust his sabre into the Frenchman's neck just as his little German orderly came up and cut him off his horse. Riding up to the 18th, with whom he was a great favourite, Vivian said: "Eighteenth, my lads, you will, I know, follow me?" and was answered by Sergeant-Major Jeffs (afterwards Adjutant of the 7th Hussars), "Yes, General, to hell, if you will lead us"; and the hussars galloped forward with great determination. Some French horse artillery attempted to get away across their front, but were ridden over and destroyed. Without a check the 18th, after having first upset some squadrons in their immediate front, inclined to the right, on to a body of horsemen who were covering the retirement of one of the squares which was now falling back. The French squadrons were driven away, and a battery behind them was abandoned by its artillerymen, all of them flying in disorder.

As the 18th were reforming, Sir Hussey Vivian rode back for the supporting regiment—the 1st King's German Hussars—and he came on a squadron of 10th Hussars under Major Howard, standing near one of the squares of the Old Guard, and he ordered him to attack the square. This attack, led by both Vivian and Howard, has been immortalised by Lord Byron in his "Childe Harold": Howard's men charged up to the Frenchmen's bayonets, but though they would not leave the square, fighting desperately with individuals, they failed to break it. The square was shaken, however, and, after some hand-to-hand fighting, Napoleon's grand veterans fell slowly back, and the French were found to be in full retreat. Vivian's brigade halted

about 10 p.m., but the Prussian and Brunswick cavalry pressed the retreating French throughout the night.

The final rout of the French was completed by the attack of Vivian's brigade, followed closely by that of Vandeleur, and it forms one of the interesting episodes of that eventful day. His services were particularly mentioned in the Duke of Wellington's despatch. He received the thanks of both Houses of Parliament, was awarded the Waterloo medal, the Hanoverian Guelphic order, and the orders of St. Vladimir of Russia and Maria Theresa of Austria. If Sir Hussey Vivian committed a mistake, it was, as Sir Evelyn Wood points out, in his excess of zeal in displacing the commanding officers of the 10th and 18th Hussars in leading the charges of those regiments.

Sir Hussey Vivian entered Paris with the allies, and afterwards commanded a brigade composed of the 12th Lancers and 18th Hussars. He shortly returned home on leave, and was entertained at a public dinner in his native town, Truro.

On the 10th September, 1821, his favourite regiment (the 18th Hussars) was disbanded, upon which occasion Sir Hussey Vivian was presented by the soldiers of the regiment with a silver trumpet and banner, purchased by their desire with part of the prize money accruing from the horses of the enemy captured by his brigade at Waterloo. Sir Hussey Vivian valued this gift among the highest of his honours. It bore the following inscription :—"On the 10th September, 1821, the day on which the 18th Hussars were disbanded, this trumpet was presented to Major-General Sir Hussey Vivian, K.C.B. Having commanded them upon many glorious occasions, they offer to him this memorial of the last victory in which it was their fortune to be led by him, as an assurance that while he gained their admiration as a soldier, he secured their lasting and unfeigned esteem as a friend, and in the hope of living in his recollection and estimation when they shall have ceased to exist as a corps."¹

From the 1st February, 1825, to the 20th July, 1830, Sir Hussey Vivian held the appointment of Inspector-General of Cavalry. On 22nd January, 1827, he was promoted to the rank of Lieutenant-General, and on the following day received the colonelcy of the 12th, or Prince of Wales's, Royal Lancers. On 29th January, 1828, he was created a baronet, and on the 1st July, 1831, was appointed to the command of the forces in Ireland. From 1830 to 1837 he was Groom of the Bed-Chamber to William IV. On 4th May, 1835, he succeeded General Sir George Murray as Master-General of the Ordnance and was made a Privy Councillor. On the 29th January, 1837, he was transferred from the 12th Lancers to the colonelcy of the Royal Dragoons, and on 30th May, 1837,

¹ On the 10th September, 1880, the 59th anniversary of the disbandment of the regiment, his son, the Second Lord Vivian, entrusted this heirloom to the care of the present 18th Hussars, "believing that in this record of glorious deeds, the memory of his father, who led the regiment to victory on many occasions, will be cherished in the corps whose admiration he secured."

was advanced to be a Knight Grand Cross of the Bath. In 1841, on account of his declining health, Sir Hussey Vivian was obliged to relinquish his seat in Parliament, and the office of Master-General of the Ordnance, and he was raised to the peerage as Baron Vivian of Glynn and Truro. On this occasion he selected for his crest an 18th Hussar holding a pennon inscribed "Croix d'Orade," and for supporters a 7th Hussar and 12th Lancer. Lord Vivian did not live long to enjoy the many honours conferred on him, for he died suddenly at Baden-Baden, of aneurism of the heart, on 20th August, 1842, at the age of sixty-seven; and was buried quietly in St. Mary's Church, Truro.

Lord Vivian had a distinguished Parliamentary career. He sat for Truro from 1820 to 1826 and from 1832 to 1835; and he represented Windsor from 1826 to 1831, and East Cornwall from 1837 to 1841. In 1834, on the occasion of the installation of the Duke of Wellington as Chancellor of the University of Oxford, the honorary degree of D.C.L. was conferred upon him. He was also a Commissioner of the Royal Military College and the Duke of York's Royal Military School. He was twice married—first in 1804 to Elizabeth, daughter of Philip Champion de Crespigny, of Aldborough, Suffolk; and secondly, in 1833, to Letitia, third daughter of the Rev. J. A. Webster, of Ashford, co. Longford.

Lord Vivian will go down to posterity as a brilliant cavalry officer, and as one who played an honourable part in the greatest victory of modern times. His services entitle him to a place in the first rank of light cavalry leaders. He was always in the front. He was possessed of fine physique, was a good rider, had an eye for country, and a quick perception. In action he was cool and fearless to a degree, and he was beloved by his men, who would have followed him anywhere. The best testimony to his private character is found on the cenotaph to his memory which was erected in St. Mary's Church, Truro:—"His nobleness of character, his charity, benevolence, and integrity endeared him to all who knew him. The widow and the orphan never appealed to him in vain; and the deserving soldier always found in him a friend."

R. HOLDEN.

THE DIFFICULTIES OF THE TACTICAL DEFENSIVE, AND HOW TO MEET THEM.

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in the Chair.

PART II.

HAVING in my first lecture but briefly touched on the difficulties that arise in dealing with, or in arranging for, some of the details of the defensive, I shall to-day pass on to the larger questions involved. And in doing this I will recall to you what I have stated to be the real purpose and objects of the defensive attitude. As the defensive attitude enables a certain resistance to be carried out by fewer men than it could otherwise be, this attitude is adopted by the weaker of two opposing forces to enable it, by its increased material power of resistance, either :—

1. To put off the decision of the fight until the opponents have been so weakened as to be successfully counter-assaulted, or
2. To gain time to allow of the free action elsewhere of a second friendly force.

Both these objects may thus be embraced, with due limitations, under the statement that the objects of the defensive are :—

1. To economise men and gain time, while
2. Either (a) allowing the enemy to exhaust his energy fruitlessly until he can be successfully counter-attacked, or (b) securing for a friendly force freedom from interference while carrying out its rôle.¹

¹ This rôle may even be that of coming to the assistance of the force standing on the defensive.

Many examples can be given illustrating each of the two last subdivisions (*a* and *b*). Speaking from the defender's point of view—Vimiero, Torres Vedras, Sadowa, Coulmiers—are all examples of a force adopting the defensive, and relying on its own inherent energies to exhaust the attackers until it could attack in return. But, in the two latter cases, the defending forces were hopelessly outnumbered and outflanked. I could also add the cases of Talavera and Gravelotte, but as each of these battles had special features I shall refer to them again presently. On the other hand, the battles of Waterloo, Woerth, Spicheren, Mars-la-Tour, Noisseville, the Lisaine, the French sorties from Paris, Beaune-la-Rolande, Plevna—are so many examples of the defenders holding out for a time in the expectancy of early assistance, which expectancy was fulfilled except in the cases of Woerth, Spicheren, and Plevna. Consequently, in this second list of battles, the force acting on the defensive was in reality acting as a “temporary pivot of manœuvre.” This is a very important fact to bear in mind, as it gives the true principles of action that should govern the use of the defensive, and we will find that in the majority of successful defensive battles this principle has been acted on consciously or unconsciously.¹ And in the same manner we can consider all fortified places and fortresses, and all fortified posts on the line of communication, as applications of this principle of “temporary pivots of manœuvre.”

I mentioned Talavera and Gravelotte just now, and suggested that they should in one sense be classed as defensive battles undertaken to defeat the enemy without extraneous help, yet they afford examples of success and failure arising from the application and non-application respectively of the “pivot of manœuvre” principle even during battle itself. In the battle of Talavera the English and Spanish troops took up a defensive position, the Spaniards on the right and the English on the left. The Spaniards, being very unreliable, were placed behind entrenchments, the English troops were not, the idea being that the Spaniards should hold their portion of the position as a pivot of manœuvre and detain the French in front of it, while the English troops undertook the decisive fighting with their right protected by the Spaniards. At Gravelotte the French left, entrenched in shelter trenches, again and again sent the German attacking troops in headlong rout, while the French right brought the German advance to a standstill. It is difficult to say what the result would have been to the Germans had the French used either half of their position as a pivot of manœuvre and boldly manœuvred against the Germans on the other half, taking advantage of the demoralisation and disorganisation that had been produced by their fire, or the nature of the country, or the tactical blunders of the Germans.

I will frankly state here that, in my own view, this “pivot of

¹ Indeed in many cases the application of this principle does not depend on the battle ending victoriously for the defenders, provided that they have gained the requisite delay in the enemy's movements.

manceuvre" principle¹ is the key that unlocks the difficulties of the defensive either when applied tactically on the battle-field or when applied strategically on the theatre of war. In what manner it does this I will explain as we go along. But I must ask you to bear in mind that the troops actually manning any pivot of manœuvre are, *when considered as a whole*, acting temporarily on the pure defensive, although parts of them may be acting offensively in making local counter-attacks. I must further ask you to note that the application of the "pivot of manœuvre" principle entails the provision of mobile troops as well as of stationary troops.

Now, while fully recognising that the defensive is a very undesirable attitude to adopt, unless we are compelled by the circumstances of the case to adopt it, and that it is only adopted in order to economise troops and to gain time for some ulterior object,—we must now ask, what are we to do, when we have to adopt the defensive, in order to minimise the difficulties and disadvantages entailed by such a course of action?

In framing an adequate answer to this question, I think that *we must be ever guided by the following three principles*:—

1. That the moral factors are those that have most control in the great drama of battle.
2. That we should always try to make use of "temporary pivots of manœuvre."
3. That the opportune counter-attack is the sword of the defence, and is the only real means of obtaining decisive results.

Of these three principles, I look upon the second one as more or less embracing the other two, and thus as forming the real key to the solution of the whole question of the proper means of making use of the defensive.

Now, in finding an answer to the question that I have propounded, I shall divide the subject up into the following headings:—

1. The choice of defensive positions.
2. The distribution of the troops in each position.
3. The improvement of the defensive capacity of the position occupied.
4. The conduct of the defence.

The third heading is usually considered to form the essence of the defensive. This is the result of a long peace training. As a matter of fact, the third heading is the least important of all.

1. *The Choice of Defensive Positions.*—In every "theatre of war" all the possible defensive positions should be known, and from among them a series of suitable tactical positions should be chosen, regard being had to the strategical, administrative, and other controlling conditions of the moment, and to the network of roads. But, knowing the disadvantages connected with a defensive attitude, what should be the characteristics

¹ The value of this principle was first shown to me by Lieut.-Colonel G. F. R. Henderson.

required of a defensive position for the purpose of minimising these disadvantages? In our text-books many of these characteristics are stated—sometimes, I think, without due thought. However, I would suggest the following characteristics as those required for a modern defensive position, with the proviso that we can never expect to obtain all these characteristics combined in any one position. In choosing one defensive position in preference to another, we simply act on the principle of balancing advantages and disadvantages and then choosing that position which has fewest disadvantages. In fact, this is the usual procedure in all matters of war.

a. Many text-books lay down, among the requirements of a defensive position, that its length should be suited to the strength of the defending force. In my opinion, this condition is almost an impossible one to secure in 99 per cent. of possible cases, and I would suggest that the following condition should be substituted for it—that the physical features of the position occupied should lend themselves to the tactical employment of the various arms of the defending force, *i.e.*, the position to be held having been selected, such a portion of it only should be occupied as is suitable to the strength of the defending force *in relation to the capabilities of the attacking force* (*e.g.*, the German position on the Lisaine).

b. The slope of the position to the front¹ should not exceed 15°, and the soil should be capable of being easily dug into. These two points are of great importance, both for carrying out counter-attacks, for minimising the physical and moral effects of the enemy's fire, and for constructing "pivots of manœuvre." Steep ground in front of a position is a great source of danger (*e.g.*, The Rotherberg, and Majuba Hill). The slopes to the rear may be over 15°, but there should be sufficient space at the top of the position for the working of guns. Facilities for earth-cover for troops in rear of the shooting line must always be considered.

c. There should be a clear field of fire up to the medium infantry ranges, if possible, and also positions for the defending artillery as will enable the guns to be massed while allowing the fire of the massed guns being "switched" or directed here and there as required.

d. The system of roads and other communications to and from and along the position must not interfere with the free employment of the troops, or their retirement, or their power of rendering mutual assistance. Defensive positions in field warfare are only means to an end, and therefore must be readily and willingly vacated when necessary.

e. The protection of the flanks must be considered. They should, in all cases, rest on "pivots of manœuvre," with a manœuvring force in connection with them. Sometimes one flank may find support on some obstacle (*e.g.*, a fortress) that renders it safe from being turned or out-flanked. But in the majority of cases, with the ranging power of modern artillery and infantry arms, and with the mobility of modern troops, merely resting the flanks of a defending force on certain obstacles or localities

¹ Especially if cavalry are to take part in the local counter-attacks.

—villages, woods, etc.—is no real protection. Consequently, in the majority of cases, the flanks of a defending force will practically be “in air,” and must rely on flesh and blood for their protection.

f. A position should have as few localities as possible along it visible to the enemy, and no salients, if possible; for all visible localities and salients will, nowadays, draw on them such a hail of projectiles as will render them untenable so long as the concentrated hostile fire continues to be directed on them. But while such visible localities and salients are so disadvantageous, yet every position should have certain selected portions of it prepared as “pivots of manœuvre”; these portions would be those that are naturally unfavourable to the execution of counter-attacks by the defenders, and, if possible, the defensive arrangements of such “pivots of manœuvre” should be made as invisible as possible. Invisibility should be always aimed at in all battle preparations.

g. If any obstacles to movement exist near to the position, they should be beyond the flanks and in front of the localities or “pivots of manœuvre” only. They should in no case prevent the effective delivery of counter-attacks. There should be no obstacles to movement in rear of the position, if possible.¹

h. In choosing a position we should not be content with a mere examination of the position itself, but should also make a close examination of the ground that will be occupied by the enemy, and see how the proposed position is dominated or affected by it. If the enemy can mass an overwhelming artillery force on positions favourable to himself, and from which he can effectively prepare the way for his infantry, the proposed position cannot be a strong one, nor be held for any considerable length of time.

i. As all positions should only be held tentatively, every facility for a speedy and orderly withdrawal should be arranged for. Consequently, the ground in rear of an occupied position should afford facilities for the construction of a “rallying” position, by the aid of which a rear guard would check any pursuit until the marching columns had started in retreat along the roads leading from the position.

The officer who is sent to select the position or positions should realise the importance of making a very clear distinction between the offensive and defensive portions of a position, and the possibilities of the mutual assistance they can give each other when each is properly manned by troops and guns. A clear distinction between the ground suitable and unsuitable for counter-attacks will solve many of the difficulties surrounding the choice and occupation of defensive positions. The offensive portions of a position are such as permit of freedom and ease of movement to the front, while the defensive portions are such as do not readily allow of such movements.

And here I may venture to make a few remarks about *localities* in

¹ Some great Generals, however, have broken this rule, but only when they had confidence in the superiority of their own troops (especially as regards their moral qualities) over those of the enemy.

a position, and the *rôle* that they should be expected to play. In the first place, I would define a locality as any feature (artificial or natural) of the ground that prevents free movement through it, and affords, at least, cover from sight. Hence, under the head of localities I include villages, farm-houses, woods, etc., that occur in or near a position. These certainly form parts of the defensive portions of a position, and, accordingly, may be used as "pivots of manœuvre" when they occur in a position and have to be held in order to prevent their occupation by the enemy. But such localities very frequently, on account of their internal construction, absorb more troops for the defence of the ground that they occupy than would have been required if they did not exist; however, this is not a disadvantage if it compels the enemy to send a still greater number of troops, against it than he would otherwise have done. Besides this, from their visibility and importance as "pivots of manœuvre," they will attract the concentrated fire of the enemy's artillery, and so will not be easy to occupy under fire. Hence, localities are necessary evils: we cannot avoid having them, nor choose to have them; if they are present, we must make use of them, and as they prevent free movement to the front, we can cover their fronts with all the obstacles we can procure. But invisibility is required for obstacles as well as for defences.

But I think that it is a fair question for consideration, whether the defence cannot make a profitable use of the effect that visible localities have of drawing on to themselves the enemy's fire and his troops, by deceiving the enemy as to their being occupied? If we can arrange our true but invisible defences *outside* of the localities, which latter are given certain preparations visible to the enemy, we might induce him to waste a vast amount of projectiles on the localities and so save their being expended on our troops.

Now, as to the *rôle* that we should expect the localities in a position to play, I would suggest that they should be so held as to play two rôles—viz., an independent, and a co-operative *rôle*. To play an *independent rôle* each locality must be so organised and manned with troops as to be self-sustaining for a sufficient length of time when acting on the pure defensive; in fact, it should be capable of acting as a miniature fortress, or of a fort of a fortress, and should have its own "special reserve" and its own commander. But this *rôle* of a locality is not sufficient, for it is a purely negative one, that of holding on or of acting as an anchor. We also want each locality to have, with the aid of its garrison, a positive influence on the course of the battle, and it can only do this by preventing the enemy passing by it except at great risk to himself. If we enable the localities to do this, then the enemy is compelled to use against them a greater force than the garrison they contain. If they are not able to do this, then they are a source of weakness to the defenders; but if they can do this, then they are a source of weakness to the assailants, because they enable the defending general, relying on their capacity to resist capture for a sufficient length of time, to concentrate a superior force in other parts of

the battle-field where the enemy is weaker and there to attack and defeat him: a procedure which forms the keynote of success both in strategy and tactics. This brings us to *the co-operative rôle* of localities. To obtain this effect they should be so held as to act as bastions or caponnières giving a strong development of flanking fire, and with mobile reserves ready to issue out on to the flanks of a passing enemy. If held in this way, the localities in a position practically bar the way to an enemy forcing his way into the position until the localities are captured; each locality should be able to say "Pass me at your peril," and then put its words into effect. If it cannot do this, the enemy will ignore it and pass it by. Consequently, the flanking effect and the action of the reserves of occupied localities are most important subjects to consider and arrange for.

Thus it is clearly seen that the localities in a position are so many "pivots of manœuvre," and that, to enable a "pivot of manœuvre" to fulfil its rôle, it must offer such serious material difficulties to the enemy's progress and to his capturing it, as will compel his sending a greater number of troops against it than the garrison it contains. The more invisible the material difficulties are that are offered to the enemy, the better it is for the defence, as it makes it harder for the enemy to overcome them.

2. *The distribution of troops in a position.*—This distribution depends very largely on the relative extents and characteristics of the offensive and defensive portions of the position, and on the danger that each flank is exposed to.

We should first conjecture what will probably be the enemy's artillery positions and his probable lines of advance, due regard being had to the previous strategical movements on each side. But we must only determine these tentatively, so as not to be surprised if the enemy acts differently to what we expected.

If the position has not been prepared beforehand, then we must first distinguish between the offensive and defensive portions of the position and determine its flanks, give each defensive portion its due garrison, mass the guns in such positions that their fire can be turned in any direction, place a relatively thin line of infantry along the offensive portions of the position, and place all the rest of the troops in reserve. Then after having done all this, see how far we can economise the men told off for the first line by means of entrenchments, etc., for the sake of increasing the number of men in the reserves. From the difficulty of supporting infantry placed in front of guns when acting on the defensive, it is very necessary to mass the guns and so enable them to defend their own front, and, in case they become silenced, to have in hand adequate reserves of infantry to send forward. By massing the guns we ensure greater facilities for "switching" their concentrated fire here and there as required.

The massed guns would have infantry on each of their flanks, and will, in fact, form to a certain degree "pivots of manœuvre," especially if they can be relied on to defend their own front. If they

cannot do this, it is a very weak point in the position taken up. For massed guns to be able to defend their own front the slopes in front of the position must be gentle and afford a good and extensive field of fire.

Our Drill Book rules for the distribution of troops in a defensive position are good, viz. :—1st line composed of a line of battalions, each of which is sub-divided into a shooting line with supports and battalion reserves; 2nd line composed of local reserves for the protection of the flanks and for executing local counter-attacks; and a 3rd line forming a general reserve for executing a general counter-attack.¹ A long position would be divided into sections, each more or less under the command of the officer commanding the unit occupying the section. No section commander would do more than execute local counter-attacks, and he would be responsible that every means of resistance within his section is made use of. If cavalry are to take part in these counter-attacks, the ground in front of the position must be favourable to their action, *i.e.*, with gentle slopes and no obstacles to movement.

The Drill Book rightly lays great stress on having ample reserves in hand. Indeed, in no other way can the general officer commanding have any control over the fight except by means of his reserves. And if we consider that, when acting on the defensive, we are more or less following the moves of the enemy and are only acting on conjecture, we see how vastly important it is that the various commanders of the defence should have ample reserves in hand to correct the effects of false conjectures and to repair any advantages gained by the enemy. "Collect all the reserves you can and utilise them actively and vigorously at opportune moments," is a solid rule for the defence. The second line of local reserves should be posted behind the offensive portions of the position, or "fronts of manœuvre" as we may call them, that is between the "pivots of manœuvre," each of which pivots would have its own garrison and special reserve. The correct posting of the general reserves is a most important thing, as it is impossible to foresee in all cases where the enemy's main blow will fall. A correct judgment on this point will test all the powers of the general commanding the defence.

As the advantage of the offensive is chiefly moral, the defenders must chiefly try to demoralise the enemy as early as possible, and this can only be done by fire. Hence the position occupied by the first-line troops and the amount and efficacy of fire they deliver is of very great importance. Wherever possible, the infantry shooting line and guns should be protected by simple shelter entrenchments in order to reduce the efficacy of the enemy's fire. These entrenchments do not form any obstacle to movements across them. In each battalion six companies can be put into

¹ The proportional strengths of the three lines cannot be laid down beforehand. The local reserves forming the second line would best belong to the same tactical units as the troops of the first line in front of them. The general reserve would be a complete unit. The possibility of having to replace the first line, if the future battle is to be one of long duration, will have to be considered when deciding on the relative proportions of the three lines.

the firing line, with three sections of each company extended. This leaves one section per company as supports, and two companies as a battalion reserve. If the shooting line, supports, and battalion reserves are protected by earthworks or other projectile-proof cover, then their losses will be so reduced as to permit of a battalion being safely extended as described. But it will then be incapable of making counter-attacks, which is a wise procedure, for until the final and decisive counter-attack is made the shooting line should stand fast and leave the execution of the local counter-attacks to the local reserves.

The question of occupying *advanced posts* in front of a position may be answered by the word "Don't" in the majority of cases. If we cannot destroy them in the time available before the enemy's arrival, the long range of modern artillery and the powerful effect of its concentrated fire are such as to render the occupation of advanced posts by either friend or foe almost impossible so long as artillery fire can be directed on it. And a further point to be considered is the difficulty of safely retreating from them under modern shrapnel fire. But to prevent the enemy gaining any serious advantage from capturing any advanced posts or localities, it is of the utmost importance to the defence that the ground in front of the position should be capable of being swept by artillery and infantry fire of the defence.

In occupying a position, especially in country of a rolling and intersected nature, it is very difficult to decide what ground to hold and what to give up to the enemy. The two great dangers of over extension and of undue reaching out to the front must be strictly guarded against. We can safely extend laterally nowadays more than we could in former years when we had arms inferior to our present ones; but, for the same reason, we must restrict our occupation of ground more closely to the main position. And then, if there be any ground close in front of the position that is hidden from the view of the defenders, the only thing to do is to observe it as long as possible, to keep a heavy fire directed on the troops trying to get into it, to mass an extra number of reserves behind it, and to counter-attack the enemy before he can establish himself there and drive him back in confusion. The same method is required for dealing with any kind of difficult point in the position, namely, to depend on the offensive energy of the reserve troops to deal with the enemy.

Before the battle begins the position would be, of course, covered with outposts, and the enemy would probably be met and harassed with advanced detachments of mounted troops (mounted infantry, cavalry, horse artillery, etc.), which would eventually find their way to the flanks of the position, the outposts retiring to the general reserves or third line, so as not to dislocate the arrangements of the main position for meeting the enemy.

3. *The improvement of the material defensive capacity of the position* follows the distribution of the troops, if the position has not already been prepared for occupation, and in the material details executed in making

improvements we must ever bear in mind that battles are won by flesh and blood, and not by material forces and means.

In improving the material strength of a position we must be influenced by the following three considerations: of securing fire-power, maintaining the nervous energy of the troops, and providing cover for the first line at least.

a. The principal object to be attained is a clear field of fire for the defenders up to medium infantry ranges at least, and such light cover as will prevent the defenders being seen or hit. The first duty of the defending artillery and infantry is to hit; the second is to hit; and the third is to hit, the enemy's troops. Consequently, besides clearing the field of fire, each unit in the firing line must measure all the ranges to the various conspicuous objects in front of the position, and it may even have to erect range marks for the purpose. It is highly important to prevent the enemy from getting to the close ranges (*i.e.*, the ranges of flat trajectory and high penetration) in an undemoralised condition. *Every judicious effort should be made to demoralise the enemy before he gets to the short ranges if the defence is to be assuredly successful, and hence the vital importance of making every arrangement for increasing the efficacy of the defender's fire and for decreasing the efficacy of the assailant's fire.*¹ And side by side with the clearing of the field of fire we can carry on the construction of obstacles in front of the defensive portions or "pivots of manœuvre" of the position.

b. The troops on the defensive will for some hours be more or less stationary, and will have to withstand the demoralising effect of a prolonged and concentrated shrapnel and shell fire directed on them. It is almost impossible to exaggerate the importance of husbanding the nervous energy of the troops to the last moment possible. "After a fever or long fasting, the bravest men are sometimes reduced to such nervous prostration as to start at the slightest noise, and even weep at the merest trifles. Between that condition and a full stock of energy there are many stages. No troops can bear more than a certain amount of exposure to fire without suffering moral loss, which is but another word for one form of nervous energy. Therefore, economy of nervous energy is even more important than economy of food or ammunition," because the latter are more easily replaced. Consequently, during this preliminary

¹ On the other hand, a very instructive lesson to *good* troops of reserving their fire for very close ranges is to be learnt from the battle of Gorny Bougarovo, fought on the 20th December, 1877. The Russians, attacked by a superior Turkish force, stood on the defensive in an entrenched position. The Turks after having poured a heavy fire on the Russians moved forward to attack them in front and on both flanks. The Russians only returned a very feeble fire to encourage the Turks to come on. Then, when the assailants had arrived at about 100 yards from the trenches, the Russians poured into them several well-directed volleys, and then, leaping from their works, rushed at the enemy with the bayonet. The Turks, having lost enormously in a few seconds, became panic-struck and fled before the counter-attack. The Russians lost about 240 men, and the Turks about 2,400 men. Had the French acted on the same principle at St. Privat, the Prussian Guards might have been driven from the field of battle for the rest of the day.

artillery bombardment, or preparation, the troops on the defensive should be provided with such shelter as it is possible to give them. In any case, the shelter trenches should be deep enough to give cover from shrapnel fire, and all earthworks should be low, and rendered as invisible as possible by being covered with sods, leaves, grass, etc., if they are constructed in grass fields.

c. The necessity for large reserves, by means of which alone we can meet the unexpected, repair errors, and execute counter-attacks, demands economy in the allotment of troops to the first line, and this economy can only be obtained by the use of "cover" entrenchments, for the construction of which time, tools, and suitable soil are required. These works should be made as invisible as possible. But directly we begin to go in for "field defences," as they are generically called, we begin to run into certain dangers. In the first place, if the position is made too strong, the enemy will refuse to attack it, and will hold its front with some of his troops acting on the defensive, perhaps in an entrenched position, and march round its flank with the remainder of his force. In the second place, one is apt to place too much reliance upon the theoretical strength of the works, and of the difficulties of the enemy's approach over open ground; and in the third place, a feeling of dislike arises to leaving the works in order to advance against the enemy, with the too-frequent consequence of allowing his mistakes to go unpunished. It is necessary to ever bear these dangers in mind in order to guard oneself against them.

Besides the clearing of the field of fire, it is necessary to free the offensive portions of the defensive position from all impediments to movement to the front, so as to facilitate counter-attacks, while the various localities in the position should be prepared as defensive pivots of manœuvre and their fronts covered with obstacles to the enemy's advance to the assault. If no localities exist, pivots of manœuvre must be constructed in the shape of works of increased strength when time permits, for without such pivots a bold use of local counter-attacks, which alone forms the soul of the defence, would incur considerable danger.

Cover for the artillery of the defensive is of special importance, as guns can be more easily ranged on than infantry, and they will probably be the target of a prolonged concentrated fire from a more numerous hostile artillery. But this cover should be made as invisible as possible. Shields for guns have been strongly advocated for the purpose of giving the gunners cover during the preliminary artillery bombardment.

Obstacles to movement should only be placed in front of the pivots of manœuvre, and should be so located, if possible, as to hold the enemy stationary for a while under an effective fire. They should, if possible, be hidden from view, so that they cannot be destroyed by distant artillery fire. But the extent to which obstacles can be used, and the nature of the obstacles, entirely depend on the labour, time, tools, and material available at the time.

As regards the defence of the flanks of the position, it is becoming

clearer and clearer that we must rely on troops, and not on works alone. A pivot of manœuvre can be constructed at each end of the position, but the manœuvring troops are the vital point in the use of such pivots.

The rallying position in rear may be looked on as a "pivot of manœuvre" to check the advance of the enemy in case of a voluntary or involuntary retreat.

A very important consideration on every battle-field is the arrangements made for collecting information of what is taking place in the different parts of the battle-field, and for communicating this information to the general officer commanding. For these purposes the defence has to rely on a good system of observation posts (balloons, field observatories, etc., with trained observers), connected by the telegraph or by signalling stations, or by orderlies with the headquarter staff.

The food and water supplies required by the troops should not be overlooked, and especial attention should be paid to the formation of ammunition depôts placed near to the troops, and to the troops in the shooting line being well supplied with ammunition.

4. *The conduct of the defence*, excluding the cases of surprises and night attacks, is the most important thing of all. We will suppose that the enemy has determined to attack the occupied position; the position chosen, the distribution of troops along it, and the artificial strengthening of the position, may all be of value; but faults in them can be corrected by a proper conduct of the defence, whereas they are of no good whatever with a bad conduct of the defence. The ruling principle for the defence to act on is, that the advantages of the assailants are chiefly moral, and that therefore the best way to defeat the attackers is to demoralise them, and then to assume the counter-offensive. Hence the defence must rely on disorganising and demoralising the enemy before he gets to the close ranges (*i.e.*, ranges of flat trajectory and high penetration), and then to counter-attack him.¹ That is to say, that the successful offensive employment of the troops of the defensive depends on suddenly taking advantage of the adverse moral condition of the attacking troops, or on surprising them. Another reason for trying to demoralise the enemy as early as possible is the bad moral effect that his close approach to the defenders will have, and it is highly important to allow of nothing that tends in any way to lower the nervous energy of one's own troops.

Another important principle of action for the defence is to boldly attack and crush any weak detachments of the enemy that are beyond the reach of opportune support. Thus, if the enemy's advanced guard rushes ahead of its main body, as at Woerth, Spicheren, or Columbey, the defensive should try and annihilate it as soon as possible. If such opportunities of dealing with the enemy in detail are neglected by the defence, the task will be made harder in the end, and even the battle may be lost.

¹ Had the French acted thus at St. Privat or opposite Gravelotte on the 18th August, 1870, the fate of the day might have been reversed. The battles of Spicheren and Mars-la-Tour would also have ended adversely to the Germans, had the French only undertaken general counter-strokes.

But we will suppose that the enemy has not made any such mistakes, and that he has determined to assault the position occupied by the defence. Under such conditions, the offensive action of the defensive can only take place some hours after the battle has begun, and after each side has been well pounded by the other, that is, after a great deal of nervous energy has been used up; for with all the care we can give to the subject, the troops in the first line will never be very well protected from the enemy's fire, especially as the cover that is given to them must not prevent them seeing the enemy and firing at him. The early disorganisation and demoralisation of the enemy can only be effected by efficacy of fire, and this involves a knowledge of the ranges, and a controlled concentrated fire of artillery and infantry capable of being switched right and left as required. For this purpose, and to secure their own front, the guns must be massed and be given earthwork cover so as to render it as difficult as possible for the enemy to silence them. Then, after the enemy's demoralisation has been effected by such a fire, the officer commanding in each section of the defence must in every way endeavour to counter-attack with his sectional or local reserves the demoralised enemy as soon as he arrives within 500 yards of the position, and his own guns have to begin to cease using shrapnel fire for fear of hitting their own troops. These local counter-attacks will partake of the nature of sorties, and so, when the enemy is driven back, the sortie will return again and get under cover in reserve. The retirement of the counter-attacking troops will be facilitated by being covered by the fire directed from the "pivots of manœuvre," and from the batteries of the defence, which will now open fire vigorously, if necessary, even if they have been temporarily silenced. These guns would be primarily directed on the enemy's artillery. It must not be forgotten that by this time this hostile artillery has become much demoralised, partly by losses incurred in the earlier stages of the fight and partly by the exhaustion caused by long-continued firing. We must always remember that the efficacy of the hostile fire is greatly lessened towards the end of the fight. We are apt to think that troops (whether of the artillery or infantry) never get exhausted or unsettled, but this is by no means the case in reality.

Now, the conduct of the defence, as laid down above, demands from the officers of the defence a great exercise of faith, for, from the conditions of the case, such a line of action cannot be adequately practised in peace-time, because it is impossible to represent a local counter-stroke when there are no shells and bullets.¹ "The effect of a counter-stroke depends almost entirely upon the *moral* of the troops against whom it is delivered; and *moral*, on the field of action, is principally effected by fire, by heavy losses, by disorder and confusion, and by the sudden appearance of a force which is determined to force the fighting. None of these can be adequately represented on the manœuvre ground, and no system of casualties, no mixing of units, no bayonet charge, no fire of blank cartridge produces the slightest intimidating effect on even the last-joined recruit.

¹ For the following extract and the substance of the next two paragraphs, I am indebted to Lieut.-Colonel G. F. R. Henderson.

When a counter-stroke is made during peace manœuvres, it is met by men who are cool and collected and by a steady fire, the moral influences are altogether absent, and it thus lacks every single element on which success depends. But on the battle-field matters bear a very different aspect. Gaps occur in the front of the attack. At one point a portion is driven back by the overwhelming fire of the defence. Another portion presses forward without support. Another is unable to advance, and clings with difficulty to the cover it has reached. Everywhere opportunities present themselves of striking a demoralised enemy either in front or flank and hurling him back with the bayonet, and no fact is borne out more clearly by history than this, that troops once checked by the fire of the defence are peculiarly susceptible to a resolute advance, especially if they can be attacked in flank. Over and over again in the Franco-German War the very appearance of the bayonets of the counter-attack was sufficient to make the whole attack collapse, and exactly the same occurred at the Alma. Troops who have not been able to gain superiority of fire over the defence, and who are suffering heavily, soon reach a condition of nerves in which they can neither shoot straight nor obey orders."

Now, if the defenders do not take advantage of this state of things and do not counter-attack, the demoralised attackers will seek cover, and before long receive supports, and so have their moral energy revived. But, if the attacking force is forced to retire by a counter-stroke, the men will get out of hand, they will be deaf to the voices of their officers, and tactical unity will be lost, with the possible result of the supporting bodies being swept away by the retiring crowd, and a panic ensuing; and then, if the defenders follow this up, and keep the flying masses within effective range, they will probably inflict tremendous losses.

The above statements summarise the facts of history. In the war of 1870 the French troops, when acting on the defensive, invariably carried out a series of local counter-attacks with remarkable results. In the battle of Woerth, where 35,000 French engaged 80,000 Germans and held them at bay for seven hours, the former made fourteen infantry counter-strokes, which were almost invariably successful, except when they were pushed too far. They inflicted heavy losses on the assailant, they created the most extraordinary confusion and loss of tactical units in the ranks of the attack, they spoilt the combinations of the attacking general, and they so demoralised the troops that in some cases it was hours before they could be rallied, while in others they were of no more use for the remainder of the day. At the battle of Gravelotte three French battalions counter-attacked 15,000 Germans, and a French brigade counter-attacked 30,000 men supported by 156 guns, and yet in each case nearly the whole front of attack was swept back, more than one German regiment was dissolved in flight, the supporting detachments were swept away, and crowds of fugitives swarmed back through the guns in absolutely uncontrollable panic, while the French losses were very small. Von Moltke thus summarises the battle of Noisseville, the first battle in 1870 in which the Germans acted

on the defensive and where they made much use of field entrenchments:—"The tactics on the Prussian side were the employment of the artillery acting in masses, and by the defence of the infantry being accompanied with frequent and vigorous counter-strokes." The Turks in Plevna, in 1877, by no means depended on a purely passive defensive attitude, but made a very great and successful use of vigorous and well-timed counter-strokes. This method of procedure is further in accordance with our English traditions, which are to wait until the enemy comes within decisive range, to beat him down with a heavy fire, and then to drive him back in disorder with the bayonet. But such local counter-attacks must not be pushed so far as to become exposed to the close fire of the enemy's artillery or to the fire of the enemy's reserves. Before such occurs, the counter-attack must be withdrawn. The troops employed in carrying out such counter-strokes should be taken from the reserves so that troops may be sent forward that have not suffered loss, confusion, or fatigue. The moments chosen for moving forward are those in which suitable opportunities occur for crushing the enemy's in detail, as, for example, when any of his detachments are seen to be without supports, or when wide gaps in his line offer chances for flank-attacks on his advancing line. Such opportunities, if utilised, will produce confusion and demoralisation, will ruin the enemy's combinations, and gradually bring about by degrees his ultimate defeat. All war experience shows in the clearest language that no good ever results from not taking immediate advantage of an enemy's mistake or unfavourable condition and defeating him in detail. In fact, every officer should be deeply impressed with the necessity, and even duty, of annihilating the enemy whenever he comes within reach with inferior numbers that are not supported, or with demoralised troops in any numbers.

As regards the final or decisive counter-attack, it will be carried out by the third line or general reserve in the direction and at the time ordered by the general officer commanding. This counter-attack will not be of the nature of a sortie, but will be pushed home to finally drive the enemy off the battle-field and to carry out the pursuit. The direction of the final counter-stroke will be largely governed by strategical considerations, and will be delivered when the general exhaustion of the enemy is apparent. Even when the position is attacked, the general officer commanding the defensive will have a difficult task before him to judge correctly as to where the enemy's main effort will be directed. As Wellington's right flank at Waterloo was his weak point, he was doubtless right in posting 18,000 men at Hal; and as Bazaine's left flank at Gravelotte was at first his weak point, he was doubtless right in posting his reserves behind it. But both these generals failed to see in opportune time that their conjectures were erroneous, and consequently both suffered, one disastrously, from the absence of their troops at the critical time and place of the battle, though both could have brought up the distant troops in time had they realised the error of their original conjecture early enough. But it is easy to criticise after the event, and one requires to

have been placed in the same situation as either of these generals to realise how difficult it is to form correct judgments in the midst of the "uncertainties" of war, with the grave results that depend upon them; it is given to but few men to be fearless of responsibility under such conditions.

The defence of the flanks will be carried out on much the same principles. Probably the ends of the position will rest on specially-constructed or existing "pivots of manœuvre"; and behind these, and perhaps well away beyond the flanks, will be posted the reserves that are to ensure the safety of the flanks. The same principles of action apply here as along the front of the main position, namely, to effect the early demoralisation of the enemy by an effective concentrated fire over known ranges, and then to hurl the enemy back with the bayonet. Long-range fighting can never secure victory. The only thing that is decisive is the energetic application of brute force, and this application must be made whether the enemy waits for it or not.

Some writers have discussed the question of only dealing counter-strokes after having allowed the enemy to force his way into the position. I cannot help feeling that such counsels are prompted by the material aspect of war, so common among English writers, and that the worst thing that can be done is to voluntarily allow of anything to occur that will raise the moral force of the enemy and depress that of the defenders, as would certainly happen if the assailants penetrated the position. I am not here speaking of cases in which the enemy's success has been gained before the arrival of the reserves who have to make the counter-stroke. I only have in view the case of deliberately not making a counter-stroke until the enemy has forced himself into the position.

Concluding Remarks.—After what I have said, it will be seen that the disadvantages of the defensive are chiefly moral, and that, therefore, the means of overcoming them must also be chiefly moral, viz., by demoralising the enemy by concentrated fire over known ranges, by the use of field defences as "temporary pivots of manœuvre" in order to economise men and heap up reserves, and by the use of these reserves in opportune local and general counter-strokes. These means apply, each in their own sphere, to the defence of small localities, or of long positions embracing several of such localities, or of a large area of country when carrying out a defensive strategy. In this last case, the pivots of manœuvre would be the fortresses and entrenched camps or positions of the country round which the field armies would manœuvre and strike at the flanks of the enemy after he had become engaged with the garrison of the pivot of manœuvre. In the first case, that of a small locality, the principle of pivots of manœuvre with offensive movements made on either or both of their flanks, also finds not only a ready application, but it is the only method of procedure that promises any assurance of success. Within a locality, counter-attacks are really the only means of compelling the retreat of the enemy, especially if they are directed on the flanks and rear of his detachments.

Thus on a large or small scale, the defensive finds its best use in being applied in conjunction with the delayed offensive on the principles described above. A part of the force acts on the defensive in a defensive position, and while the enemy attacks this position he is counter-attacked in flank by another powerful force. It is the same idea as is involved in the principle of "temporary pivots of manœuvre," combined with a striking or manœuvring force, which strikes at the psychological moment, or moment of demoralisation in the enemy's ranks. The German manœuvres of 1895 afford very good illustrations of the principles advocated above.

The great difficulty in the matter lies in our not being able to properly realise moral effects in peace-time; and the consequence of this is the universal neglect of rehearsing the proper method of defence in peace manœuvres. Another great difficulty lies in the choice of the right moment for delivering the various local and general counter-strokes. Again, the change of the attitude of the whole force from the defensive to offensive is by no means an easy operation. The consequence of all these difficulties is, that "higher qualifications are required to make an able defence on a large scale than to direct an attack with adequate means." However, I have endeavoured to show you that by acting on certain principles, involving a reliance on the operation of the moral factors of human nature, many of the difficulties of the defence, which chiefly arise when the fight rages within a short distance of the main position, are completely met by the actual transference of the close-range fighting from the vicinity of the defensive position to the vicinity of the line of attack, thus transferring to the attackers the rôle of the defensive with all its difficulties. But to enable this to be done, *the physical features of the position must lend themselves to the application of these principles.* The necessity of the defensive acting on the offensive is admitted by all writers, though they usually fail to state in more detail how this should be done. This omission I have sought to supply, and to show how offensive movements, delivered at the proper times of moral crisis, and based on defensive pivots of manœuvre, give us the means of solving all our doubtful questions in defensive projects. If the object of battle is the annihilation of the enemy's means of resistance, and if the offensive is the only way of procuring a decisive result, then the defensive must be abandoned before the end of the fight, and the offensive vigorously assumed, or else defeat will have to be accepted. By accepting these principles of action, the near defensive (close to the position) becomes a thing as little thought of as defeat, because it is now transferred over to the enemy in front of the position by having been changed into the offensive. The truest principle of war to act on is that the secret of success lies in a bold and energetic offensive, and not in passive resistance, and that, therefore, a general counter-stroke can alone win a decisive victory for the defensive.

In conclusion, I may here summarise, briefly, what I consider to be the chief points to be carried out in defending a tactical position that it has been decided to hold :—

1. The position should have such a gentle slope to the front as to form no impediment to the execution of counter-strokes, and there should be a clear field of fire for as long ranges as possible.
2. Divide the position into defensive and offensive portions, *i.e.*, into pivots and fronts of manœuvre. The pivots of manœuvre should be strengthened and covered with obstacles invisible at a distance to the enemy.
3. Mass the guns so that they can, by their concentrated fire, defend their own front in clear weather, and be able to turn their fire in any other direction. The infantry will be on the flanks of the guns disposed in three lines; the first to form a shooting line with the usual supporting troops, the second to form local reserves to protect the flanks and execute local counter-strokes along the front of the position, and the third to form a general reserve to execute a general counter-stroke. The pivots of manœuvre to have their own special commanders and reserves.
4. Collect ample reserves behind the offensive portions, or fronts of manœuvre, of the position. The more difficult the nature of the ground and the greater the advantages it gives the enemy, the greater must be the amount of the local reserves allotted to that point; the flanks come under this description.
5. Maintain on the enemy a continuous and well-directed infantry and artillery fire, delivered from covered emplacements and trenches, and over known ranges, for the purpose of demoralising and disorganising the enemy's troops as early as possible.
6. Employ the local reserves in opportune local counter-strokes as soon as the enemy gets to within 500 yards of the main position.
7. Employ the general reserve in a general strategic counter-stroke to decide the battle when the enemy is felt to be sufficiently exhausted.
8. Construct a pivot of manœuvre in rear as a "rallying" position.
9. Arrange for the regular and frequent supply of ammunition, water, and food to the troops, especially to those in the front line, and for the collection and transmission of information to headquarters.

From the foregoing remarks we see that entrenchments, or field defences, find their highest value and truest use as pivots of manœuvre acting as tactical supports in battle. "And whenever a general has thought more of maintaining his ground than of annihilating his enemy, whenever he has let his enemy's blunder go unpunished, when he has neglected his opportunities of dealing with him in detail, when he has

trusted to his entrenchments to win his battle and not to the vigour and timeliness of his counter-strokes, then the strongest position, the most elaborate system of entrenchments, have proved but a broken reed. 'Entrenchments,' says Meckel, 'are the shield of the defensive; the counter-stroke is the sword.'"—(Lieut.-Colonel G. F. R. Henderson.)

Colonel E. J. THACKERAY, C.B., V.C. (late R.E.): It may sometimes happen that instances occur, although not very frequently, where it is necessary for a body of troops to act practically on the defensive, while at the same time they are endeavouring to act on the offensive. This is what happened during the siege of Delhi in 1857. At that time the Delhi Field Force was under the command of Sir Henry Barnard, and after the death of that general from cholera it came under the command of General Sir Archibald Wilson. From the 8th of June to the 7th of September, this force while besieging Delhi was practically acting entirely upon the defensive; it was exposed to attacks both by day and night throughout the whole time. It was not until the arrival of reinforcements from the Punjab sent down by Sir John Lawrence in September, that it was possible to undertake any operations of an offensive nature. During the early part of the siege the position on the Delhi ridge was exposed to attacks from the front and from the rear, and was also enfiladed along its whole length by the fire from the enemy's works in the suburbs of Kissengunge. Two columns were sent out to destroy these works on the 17th June. One column was commanded by Sir Henry Tombs, and the other by Sir Charles Reid. Both these columns were successful and entirely destroyed the battery and the magazine and burned the village in which the works were situated. As part of a concerted scheme a detachment of the enemy's cavalry charged into the camp on the 9th July, and after causing considerable confusion and severe loss was repulsed with heavy slaughter. A general attack was made on the position under cover of a very hot fire from the place, and a strong column under Brigadier-General Neville Chamberlain advanced through the suburbs, chasing the enemy out and driving them into the city. It suffered most severely, however, on that day in killed and wounded, the losses being between 300 and 400. Between the 10th and the 14th July, active work was carried on in strengthening the right flank of the position. Early in the siege—this remark is with reference to what Major Mayne said with regard to obstacles—a lofty mound, evidently a disused brick-kiln, had been taken possession of, and was roughly formed into a battery for three heavy guns, and an approach with an easy slope cut along its face. It was called "The General's Mound," from having been a favourite position of Sir Henry Barnard during a good many fights of which he was an eye-witness. It was between this mound and a mass of ancient Mahomedan buildings abutting on the Nujufgurrh Channel that the enemy's cavalry broke through, and it was necessary to make the ground impracticable for horsemen. Speaking with regard to obstacles, strong parapets, deep ditches, and thick abattis of trees and brushwood were carried over all the open spaces, and provision was made for placing field-guns in battery behind the bank on the right of the mound. The position was thereby strengthened so as to be safe against attack. I have only mentioned these two or three instances to show the necessity and importance of the proper selection of ground, which is also referred to by Major Mayne. I fully agree with all that Major Mayne has said with regard to the difficulties of deciding what ground should be held and what should be given up to the enemy. Everything depends upon the right selection of the ground. There are, I think, occasions on which it may be necessary to hold advanced posts, although many losses have to be sustained in so doing. This was the case in the instance to which I refer. The advanced post, which I dare say is known to some here, called Metcalfe's House, was held throughout the siege. It was captured from the enemy on the 12th June, and was held throughout the whole

of the time. It was subject to frequent attacks from the enemy, but to give up that advanced post was never thought of for a moment.

Captain F. A. MALONY, R.E.: There is only one point on which the matters advanced by my friend Major Mayne seem to me to be hardly borne out by experience of war. He said that localities, such as villages, farms, and woods, are necessary evils in defensive positions. But surely the history of European war is that villages are most valuable to the defence. For instance, Aspern, Essling, Wagram, Fuentes d'Onore, the villages near Lützen and Leipzig, La Rothière and Ligny, during the Napoleonic wars; and Fröschwiller, Noisseville and Bazeilles, Le Bourget, and other villages near Paris, in 1870, played a leading part in the battles round them, and their stubborn defence greatly delayed the advance of overwhelming numbers. As to farms, we know Lord Wolseley said, "Let everyone remember Hougmont," and what a splendid defence that made. Woods have often served the defence in the same way, but some tactical teachers would now have us carefully avoid them. We know that the French suffered terribly from the German shells in the large wood near Sedan, the Bois de la Garenne, but surely this was a special case. The very fact that the French fled out of the open into the wood shows that it afforded some shelter. The wood became crammed with fugitives, the German batteries formed a semi-circle round it, and it was then most scientifically bombarded by Prince Kraft zu Hohenlohe-Ingelfingen, who had nothing else to fire at. Under these circumstances Zola's description of the awful effects of the shells in those woods is probably hardly exaggerated; but still I think that is a special case. The lecturer said that these localities will attract the concentrated fire of the enemy's artillery; well, so much the better for the rest of the position, because, if the enemy's batteries are firing there they cannot fire upon the rest of the troops, and it seems very doubtful whether the bombardment will be worse for the defenders of the locality than it has been in the past. Shrapnel will certainly have less effect than in the open, for its bullets have little penetrating power. As to high explosives, my experience of carrying out demolitions with high explosives is that they throw fragments of iron in direct contact a long way, but they only crumble stone and brick. It may therefore well be that villages and woods will be the only places found to be comparatively safe from their nasty little splinters. On the other hand, the projectiles which were really effective against villages—powder filled and incendiary shells—appear to be going out of fashion. I believe sometime ago an experiment was carried out with 12-pounder batteries at a coast-guard station which had been undermined by the sea, and that their shells produced singularly little effect. (I understand that you, Sir Richard, carried out a similar experiment near Jes Por, Dartmoor. I am sure this meeting would be very glad to hear the result, and how it bears upon this point.)

Major H. W. PEARSE (East Surrey Regiment): I should like to make a few remarks on the points of Major Mayne's lecture which attracted my attention as an infantry officer. It is obvious that there are most important lessons to the infantry in this lecture, and it is very possible that the dispositions for defence of large bodies of troops will be altered in consequence. The fact that Major Mayne conclusively proved that infantry must be kept clear of the front of the artillery in a position is a new one, as he said, and its recognition most important. The great lesson appears to me, however, to be that troops acting on the defensive will be defeated unless they are of superior quality to those brought against them. This, if true, is a very serious matter for England, for we know what troops we are intending to rely upon for the defence of the country. These troops, if they are to fight on the defensive, must be superior in discipline and in courage to those of the enemy, or they will be unable to assume the offensive when required, by which means alone, the lecturer tells us, victory is possible. The

courage we hope and we feel sure they will possess; but as to discipline, that is another matter. We shall have troops of various qualities, Regulars, Militia, and Volunteers, and whether they will all be sufficiently disciplined to take the offensive in the course of a serious action is a matter which we should very seriously consider. With regard to a minor point of the same subject, it seems we must make a general rule that troops which have been put behind defensive works must not be expected to make counter-attacks. I think that is what Major Mayne intends us to understand. That, in fact, all counter-attacks, owing to the reluctance of troops which have been behind shelter to leave it, will have to be made by other troops. We must make up our minds that if we put troops behind shelter-trenches or other works they will stop there. There is one other small point I should like to refer to in Major Mayne's remarks last week, viz., the drawback, mentioned by him, that field works executed on downs with a chalky soil are so conspicuous as to be a great source of danger, rather than a protection. But Major Mayne mentioned one means by which that difficulty can be got over, viz., by turfing them, which, of course, would take a long time; but I cannot help thinking also that the ingenuity of our Engineers will devise other means, such as the use of dyeing materials, screens, etc., now that attention has been drawn to the matter. There may, therefore, be something gained by inviting attention to the lecturer's remarks on this point.

Major-General T. FRASER, C.B., C.M.G. (late R.E.): We all owe a debt of gratitude to Major Mayne for the lecture he has given us, and I owe him a further debt because in 1880, when I had finished for the Siege Operations Committee some laborious experiments on musketry firing at long ranges, I left for the Transvaal, and regretted very much that the work which had cost so many months of labour to many officers would be to a certain extent lost, because I could not crystallise the results and give them to the Army, as seemed desirable. Major Mayne, however, did so in my absence in a much more able way than I could have done, and so that the Army has greatly benefited. I am not prepared to say much on this subject, because I had not time to study the lecture in the way I should have wished, but it has fallen to my lot to do a good deal of the work of selecting and preparing defensive positions. I have had, in a subordinate position, to do so in the case of more than one metropolis, and also in active service in several cases on a much smaller scale, and I am afraid I must confess that circumstances rendered it impossible to fulfil all or even most of the conditions that Major Mayne very properly lays down. I say this in order to draw attention to the fact that the preparations for defence and for attack are cases of doing the best you can. Conditions are so varied, circumstances are so more or less unfavourable, that all we can do in these cases is to be ruled by them. The points which Major Mayne has laid down are good and sound, but I may touch on one or two matters of practical experience. With regard to steepness or slopes in front of a position, Major Mayne considers slopes not exceeding one in four suitable; as a matter of experience I think such slopes too steep to be readily defended, and should be inclined to prefer gentler slopes, even though the fall were towards the position, instead of from it. It looks a little formidable to have the enemy above you, but on the whole there is a greater tendency to fire over you. When steep ground has to be included, the difficulty, may sometimes be overcome by firing obliquely across it. Another point I wish to lay great stress upon is that nowadays if you get engaged in a defensive position it is very unlikely you can withdraw from it voluntarily without the most serious results. Though the deterrent effects of a prepared position may in itself discourage an enemy from attacking it. In speaking of localities and pivots of manœuvre, Major Mayne suggested very happily that small counter-attacks should take place from the flanks. With that I heartily agree. With regard to purely defensive sections, I must say I do not think the shallow shelter trenches we have in our drill-books are suitable. They give no cover except

at the closest ranges. They should, I think, in such cases be deep and narrow. That seemed to me to be a main lesson from the war of 1877 in Turkey. You must sacrifice something; you cannot have facility of movement to your front and at the same time effective cover against musketry and the ever-increasing use of shrapnel and of field howitzer shells with high explosives, which latter sweep the ground in all directions from the burst. I think the opportunities for small counter-attacks have diminished. Great results from counter-attacks must be got by moving large bodies and doing things on a great scale. There is one idea that struck me in seeing field manoeuvres in India, viz., that in most countries the range which is available for artillery, the range of vision, is constantly very short. People talk about fire at three or four thousand yards; but where do you get that? You get it in uncultivated countries, in the plateaus of South Africa, and in the North African deserts where there is absolutely no vegetation; but in ordinary circumstances the range is much shorter than one would suppose; and this is a fact that is too often lost sight of when preparing an attack and when selecting the fighting positions for infantry on the defensive. Infantry positions, which oblige the artillery to come close up in order to see at all, impose that arm to be swept off the field entirely by musketry fire which, at short range, is much the more effective of the two. Such positions tend to reduce the fight to a musketry duel, and to counter-balance a relative weakness in artillery on either side.

Major MAYNE in reply said: With regard to what Colonel Thackeray says, I think he gave us a very good example of the efficacy of counter-attacks when describing the action of the two columns he spoke of, for relieving the besieging force of the difficulty that our troops experienced when compelled to stand on the defensive, though really they were the attackers in the siege. The besiegers found themselves in this difficulty, that their lines were being swept by the native infantry and artillery fire, and so they suddenly counter-attacked with the two columns spoken of, and thus relieved themselves. With regard to advanced posts, my personal opinion is that we cannot go back very far into history in this matter, on account of the tremendous difference in the weapons of now and then; and I think that the question of advanced posts resolves itself into this: Is the advanced post a large one, or a small one? that is, will it give cover to a large body of the enemy, or to a small body? My own opinion is that with modern weapons, if there is only a farmhouse a little way in front of the position, and we have not time to destroy it, it cannot be of very much advantage to occupy it, as the only force with which the enemy could occupy it would be by a company or so which would not be able to offer much danger to the position. The farm of St. Hubert, in front of the French position at Gravelotte drew to it a large number of disorganised and demoralised German troops, and if the French had only known what was behind that farm they could have inflicted a tremendous amount of damage on the Germans there. But unfortunately for themselves they did not know that the Germans were so jammed up there that they could not do anything; however, the occupation of the farm of St. Hubert was not of any real advantage whatever to the Germans. In one of the late examinations for promotions, there was given a map of a position with a large railway cutting of very considerable extent lying away to the front of a part of the position, and which offered cover for a very large number of the enemy's troops. In this particular case I think it would be a very serious disadvantage not to occupy the cutting. Consequently I think that the whole question of occupying advanced posts lies in the question: What use can the enemy make of them against yourself? That brings me rather to what Captain Malony was speaking about. He instanced various battles in which localities and advanced posts were made use of, and mentioned the farm of Hougemont at Waterloo. There again the weapons were used at such very short ranges that I do not think that the conclusions to be drawn from those fights will hold with modern weapons.

That is the reason why I gave the opinion that I did about not holding advanced posts in the majority of cases with our present weapons. Then again I pointed out that, with regard to the attractive power of localities, it was quite a question open to debate whether it would not be well to make use of all the visible localities that might exist along a position in such a way as to make the enemy think that they had been prepared for serious occupation, in order to attract his fire on them, while at the same time having our real defensive line outside of them. As to the effect of modern projectiles on localities and the troops holding them, I think that, in addition to the material effect of these weapons, we have to consider their moral effect, and that even shrapnel, used with percussion fuses, falling into and bursting inside buildings and scattering their bullets about the rooms, and even shrapnel dropping their bullets about the streets of villages, would have a very demoralising effect indeed, when this fire is kept up, not merely for a few minutes, but in some cases for two or three hours or more, on the defending troops. The question of high explosives is not a practical one at present. I do not think any nation has got any reliable batteries of howitzers for field use, and those that have them are rather afraid to fire them. With regard to the shrapnel that is being used now in place of common shell, the moral effect of this constant bursting of the shells and the dropping of their bullets about the men will have a very serious effect on their nervous energy and on their desire to remain at their posts; and for that reason I think deep and narrow shelter trenches, etc., outside of the localities to be defended, are the only means of holding many of these localities. For the same reason, many of the advanced posts will suffer very heavily from the concentrated fire, because such advanced posts will draw a very heavy concentrated fire from the enemy, and I do not think the troops will care to stop there very long. I understood Major Pearse to say that the defenders will be defeated if they are not superior to the attackers.

Major PEARSE: Superior as regards the quality of the troops.

Major MAYNE: I thoroughly agree with him there, as he will see that I have based nearly the whole of this lecture on the moral qualities of troops, and in my first lecture I pointed out the fact of the moral factor being so very important. We find in many wars that Regular troops, who have been well trained, will always defeat larger numbers of untrained troops who have not had instilled into them that artificial or acquired courage which we call *discipline*. I think the whole lesson of the second half of the Franco-German War is a very serious one for us to consider in England. Of course the troops at Waterloo were very inferior to what the Duke of Wellington had had before in Spain, but at the same time the French troops were very inferior also to what Napoleon had had before, and they were not, therefore, on either side as good troops as these generals had had serving under them in previous years. With regard to troops behind entrenchments not caring to attack, that remark especially applies to siege works, where they have been for some days behind entrenchments. I think that the May number of the JOURNAL published by this Institution, containing the conclusion of those three articles by Colonel Hare on Captain Hoenig's work about the fighting at Mars-la-Tour on the 16th August, 1870, is of very great value to the military student. He points out there in very strong language the great desire of a soldier to preserve his own life. Individuals may have great courage, but when we come to deal with a mass of men, the most of them are not heroes, and their general tendency is not to endanger themselves so far as to risk their lives. The consequence is that the troops behind entrenchments or behind any cover will only be got to advance with the greatest difficulty. We always find that troops under serious fire make for cover. The same objection applies to allowing troops to lie down—the difficulty is to get them up again in order to advance. And so I think that for these reasons, for carrying out counter-attacks you want troops who have not been exposed to fire,

and who have not been kept behind entrenchments. Further, if the troops in the first line were to advance for a counter-attack and then are to come back again—one does not know how they are going to be treated by the enemy during the counter-attack—they may be handled so roughly that they might retreat hastily beyond their original line of trenches. So that for carrying out counter-attacks I think the troops executing it should be taken from the reserves, and thus leave the shooting line of the defence in position to enable it to cover any possible retreat of the counter-attack and to prevent any pursuit on the part of the enemy. The only other manner that I can think of for covering the white line of trenches dug in chalk would be with any bushes available near at hand; but most of the positions on the chalk area are open downs, that are comparatively treeless and hedgeless; and if the enemy saw long lines of bushes all along the ground they would at once know that there were shelter trenches there, and could note plainly the place where the troops were posted. For the moment I cannot think of any other means of hiding the white lines of trenches dug in chalk soil. I am sorry General Fraser has had to leave, because I would like to thank him personally for what he said. I clearly pointed out that the whole question of taking up any position depended on the balance of advantages and disadvantages, that is to say, when we have the choice of several positions, we have to choose the best one we can.¹ You cannot find a position possessing all the advantages required, but whenever any one advantageous condition does not exist it means that the position chosen has so much to its disadvantage, and is more or less weak in that particular respect. It is impossible to find a perfect position with every requirement in it. With regard to retreating from defensive positions, of course that is a strategical question, and I know there would be great difficulty in retreating from a defensive position after you have been hotly engaged with the enemy. But the point that I laid stress upon was not the tactical aspect of a defended position, but its strategic rôle. If you found the enemy was not going to attack you in front, but was marching round your flank, you must be prepared to leave your position as quickly as possible, as the Confederates had to do in Sherman's Atlanta campaign. He marched round their flank, and they had to leave their fortified position and take up another further in rear. But when he got there he marched round that position again, and they had to go away once more and take another position. Another point in which I think General Fraser mistook me was with regard to the works thrown up round pivots of manœuvre. I particularly laid stress that counter-attack would not be made from the pivots of manœuvre, but between them, and therefore the actual pivots of manœuvre could be covered with any amount of obstacles you like or strong defences, because a counter-attack would not take place in front of the pivots of manœuvre, but between the pivots where the ground was favourable for the operation. As to the local counter-attacks which General Fraser also objected to, I simply offer you the facts of history as they occurred in the Franco-German war, and ask you to let them decide as to whether local counter-attacks are of value or not. I can say no more on this question; I have no experience personally myself, but on reading the published accounts of histories we do find that these local counter-attacks in the Franco-German war had sometimes a most tremendous effect. At Gravelotte two or three battalions of the French attacked many thousands of the Germans and really sent them, as we now know, in headlong flight—so much so that the German Head Quarters almost thought they were in for a disastrous defeat on the right half of their position. At the battle of Woerth, in the first French counter-attack that took place, the German troops that retreated before it were not heard of again until the very end of the fight, when the final assault was being made at Fröschwiller. I can only offer you the facts of history

¹On one point I think that General Fraser has misunderstood me. He referred to positions covering a town to be fortified, while I referred to positions taken up in open field warfare. In the first case the choice of available positions is very limited; in the second case it is not so.—C. B. M.

on the effects of counter-attacks, and cannot express any opinion at all about it, based on practical and personal experience.

The CHAIRMAN (General Sir R. Harrison): Gentlemen, you will expect a few words from me, no doubt, and I will not detain you more than a few minutes. When we were here last Friday, I said it seemed to me that the way to get over the difficulties which will be caused in the future by the far-reaching projectiles of the present day, which necessitate dispersion under fire, and concentration for the shock, was by the free and ready use of *small units*, and that I hoped to be able to say a word or two to-day on the application of small units to a defensive battle-field. History is full of accounts of how a few determined men have held a small post against vastly superior numbers, and by so doing have changed the whole phase of a battle, and sometimes even of a campaign. The lessons to be derived from these facts have not, I think, been so fully grasped by us or perhaps by any nation as they might have been. The Germans in the great war of 1870 did make a partial use of them, notably when the army of Prince Frederick Charles, at that time greatly inferior in numbers, hemmed in at Metz the whole flower of the French Army. The principle was also partially used by the Turks at Plevna and elsewhere. It seems to me that the principle that I have in my mind is the same that has been described by Major Mayne in his lecture, when he talks of pivots of manœuvre and localities. I should like to give you a practical illustration of what I mean—I always like to look at things in a practical way. Let us take one of the assumptions that are constantly being made in war games and tactical exercises in this theatre, that there is an attacking force marching against some objective—you may say London, if you like, only I would like to put my attacking force farther away than usual, viz., in the West of England. I take England because the country in England is utterly different to the country that you find abroad. Let us take, then, an attacking army, which, having landed somewhere in the West of England, is marching against London, and the General of the Western District is ordered from Head Quarters to oppose that army with what troops he can collect. No doubt, at the same moment there will be other attacks taking place elsewhere, and he would not expect to get any assistance; he would have to rely entirely on the troops that he had with him. Well, knowing his country, he would select a position where roads converged or where the enemy would probably pass. The way in which he would take up that position I think would be very much what Major Mayne has described. He would detail *small units* to occupy posts along the position that he had chosen, posts such as small villages, or farms, or a defile, or perhaps even a hill. Each one of these posts he would order the troops to fortify to the best of their ability. And each one would then become a sort of small fortress, more or less self-dependent, which the garrison would be instructed to hold to the death. Behind this line of small posts he would place the mass of his troops, sheltered as far as possible from the enemy's fire, and so organised that they would be able either to make a counter-attack between the posts when the enemy made his advance, or to move away to a flank, presuming the enemy tried to get round them. Just a word on outposts. I may mention that I made a mistake when, at the commencement of to-day's business, I suggested to you to discuss *outposts* as a portion of Major Mayne's lecture. Major Mayne in his lecture has dealt only with *advanced posts*, while I was talking about *outposts*. Now it seems to me that you must have outposts, that is, movable troops in front of a defensive position, just as you would in front of an attacking army. These outposts, which I should like to see composed, as a rule, of mounted men, would hold the enemy, would find out what he was doing, and would fall back before him. Moreover, if a General wished, they could do what outposts did with great advantage in one or two small wars in which I have been engaged, viz., they could *draw the enemy on to your position*. There is one other point I should like to allude to before we leave this subject, which is, that there is a tendency in attacks on small

posts, or, in fact, in all attacks, for the attacking lines to bend inwards. I dare say you have seen what I mean, some of you in real war, and most of you in manœuvres. It is caused, no doubt, by the troops, who are advancing, taking up, with more of their numbers than are actually facing the post, a wrong direction; and the result is that the attacking line curves inwards. This gives the defensive force a great opportunity; and, if there are local reserves (which I was glad to hear that Major Mayne made a point of), if you have local reserves which are able at once to take those lines in flank and attack vigorously, they will almost always be successful. You must have local reserves, and you must also have one big reserve, under the hand of the General commanding the whole force, with which to drive a counter-attack home or engage in the decisive action at the end of the day. At the end of my remarks on Friday last I mentioned that I thought it would be a great advantage if at all these lectures at this Institution any principles that were enunciated and brought home were practically applied to our own Army. We are rather apt to be academic here, and not to take practical advantage of what we learn. Now, it is not my business to say how this shall be brought about, but, as chairman of this meeting that has listened to Major Mayne's lecture, I think I may just take one point. Major Mayne has given it as one of his principles that a passive defence is valueless—that is to say, if we in England place our men passively along a hillside in what may be apparently a good position and leave them there without the power of manœuvring, without the power of making counter-attacks, we are incurring very great danger. It seems to me that it ought to be thoroughly well known and thoroughly well appreciated that troops acting on the defensive must be prepared to act offensively if required. This means that we ought to have a good tactical school somewhere to teach all branches of the Service in our Army. I have nothing more to say, except to ask you to thank Major Mayne most cordially for his exceedingly able and well-thought-out lecture.

THE CONVENTION OF GENEVA, AND THE CARE OF SICK AND WOUNDED IN WAR.

By Mr. JOHN FURLEY.

Friday, 24th April, 1896.

The Right Hon. VISCOUNT KNUTSFORD, G.C.M.G.,
in the Chair.

LORD KNUTSFORD: It is my first duty to introduce to you Mr. Furley, who is good enough to give us an address this afternoon. I should just like to say that one cannot very well attach too much weight to what Mr. Furley says upon this occasion, because I do not think there is anyone in this country, indeed I may say in any other country, more competent to give an opinion upon the questions that are raised by his address than Mr. Furley. He has spent much of his time, and has been at much trouble and considerable expense, in working out and establishing the best modes for relief for sick and wounded; and he has not done this while sitting quietly at his ease in an armchair in London, on the contrary, he has had great practical knowledge of the work that is done and he has seen it on the field of battle. I need hardly remind those who know Mr. Furley of his work, but some may not know that work, and to them I would point out that Mr. Furley was director of ambulances during the Franco-German War of 1870, that he was director of the flying ambulance attached to Marshal MacMahon's army when they were fighting the Commune in 1871, that he was also in the Carlist war, and I believe in Montenegro in 1877. Therefore, Mr. Furley has had a practical knowledge of the working of the Convention of Geneva, and also of ambulance work. With these few observations I beg to ask Mr. Furley to be kind enough to address us.

LECTURE.

THE Convention of Geneva was drawn up in 1864; within six months it was signed on behalf of eight European States, including Great Britain, and at the present time it has been accepted by thirty-six Governments.

A red cross on a white ground was adopted as the badge of neutrality, and since 1864 thirty-seven national Red Cross Societies have been formed, each with an independent national existence; but with one international object, namely, the amelioration of the position of sick and wounded soldiers in war.

It is popularly supposed that the purpose of the convention was to establish Red Cross Societies; this is an error; the treaty makes no mention of such societies; but it is true that by taking voluntary aid to the victims of war under its protection, it suggested the formation of Red Cross Societies.

After an experience of thirty-two years, it might be imagined that there was nothing new to be said on this subject, and that, especially in every country possessing a Red Cross Society, the meaning of the badge would be thoroughly understood; but this is far from being the case. On the Continent of Europe, where national jealousy, fostered by commercial rivalry and stimulated and encouraged by continuous and ostentatious preparations for war, is always on the alert, it is perhaps natural that the effects of past wars should not be forgotten or ignored; but it is quite otherwise in our island home. We trust to the Government of the day to keep the country prepared for war; but we have no conscription to affect every family and business establishment, and military preparations are on a smaller scale and less conspicuous. Centuries have elapsed since our shores were invaded, and from the time of the Crimean war, although we have never been free from little wars and expeditions in remote parts of the world, not one has occurred to strain to the utmost the moral and physical resources of the nation, or to bring it into immediate touch with the complicated horrors of invasion.

Twenty-six years ago, a great war between neighbouring Powers roused England from its apathy, and the deepest sympathies of all classes of the community were manifested by the efforts made to do something towards the alleviation of the sufferings of those who were being mown down by thousands on the field of battle, as well as for the benefit of the countless victims represented by the widows and orphans and the owners of devastated fields. Then it was realised how, notwithstanding national prejudices kept alive by irresponsible writers and selfish speculators, civilisation has succeeded in forging links between nations, which, though powerless at present to make war an impossibility, are sufficient to compel those engaged in it to look upon the wounded foe as no longer an enemy, and to treat the victims of war as worthy of the greatest consideration and compassion. Every country in the civilised world joined in this great mission of mercy, and never before was the brotherhood of nations so apparently at the point of realisation: but more than a quarter of a century has passed away, and we now seem as far as ever from this desired consummation. Wars have not ceased, nor is it likely they will do so, judging from the annually increasing growth of armies, the expenditure on behalf of fleets, and the general uneasiness which prevails.

I have thus only lightly touched on questions which are being daily treated by speakers and writers whose qualifications are far beyond those to which I make any pretension; but as one who has had a considerable experience of the terrible and wide-spreading effects of war, and who recognises that these are more equally divided than is generally supposed between the vanquished and the victors, I am anxious to bring before civilians one of the responsibilities incumbent on them, and thus, perhaps indirectly, to influence the military authorities by convincing them that it is a subject in which they are immediately concerned. A civilian's participation in the defence of his country does not cease with his pecuniary contribution towards the Army and Navy; there is something more than this required of him.

It is not a popular thing to suggest that a foreign foe may some day effect a landing on our shores; nevertheless, this is a subject which military men have to consider as a serious possibility; it is, therefore, no less incumbent on the civilian to be prepared for such an eventuality. Any amount of care and forethought shown in this direction will do nothing to encourage war, but should an invasion take place, it would undoubtedly lessen many of the attendant horrors, whether the enemy succeeded in advancing or were driven back from our shores.

This paper must, however, be confined to one phase only of war, namely, the means at our disposal for the care of the sick and wounded in war. Great as is the ignorance which prevails, no one with any knowledge of this matter would, I think, be found to assert that these means could be entirely provided by the Navy and Army Medical Departments. For these two eminent branches of our military services I have the very greatest respect, founded on a personal knowledge of many years, and an experience which enables me to assert that, although their members may be classed among the non-combatants, they have never been found to shelter themselves under this appellation when a deed of mercy or courage has called for a display of the grandest military qualities. Does not the roll of the Victoria Cross prove this by the percentage it shows of medical officers?

It is only natural that military authorities should bestow more attention on all the means which may contribute to the gaining of victories over their enemies, rather than engage in the uncongenial task of worrying a Chancellor of the Exchequer by proposing additions to the Estimates under the head of field-hospitals. It is one of the difficulties created by our insular position that we cannot regard the prospect of war in the same comprehensive manner as our Continental neighbours, and, therefore, it is that on this one important subject, the treatment of the sick and wounded in war, we are slow in following the examples we have before us in the great armies of Europe.

I would that I had the pen of the able writer of "The Battle of Dorking"; not that I might describe the confusion which would be caused by a hostile landing and a march on London; but rather that I might indicate the absence of confusion in everything concerning the sick and wounded, which would be the result of previous preparation and a strict adherence to the Convention of Geneva.

This treaty is one of the most remarkable facts of modern times; it is brief and simple, and it should be an obligatory subject in the instruction of every man who serves in the Army. I would go a step further, and say that it would prove a far more useful item of instruction than many of those included in the programme of our Board Schools, and not the less so that its meaning could be made quite intelligible in the course of a single hour.

It cannot be too generally known that when a country is in the occupation of a foreign foe, a knowledge of the Convention of Geneva is quite as important to the native civilians as it is to soldiers of the invading army. Since 1864, as I have already remarked, many Red Cross Societies have been formed, and, as may well be imagined, they

have passed through many vicissitudes. In 1870, when the Franco-German War broke out, a very confused idea prevailed as to the meaning of the Red Cross badge, and many mistakes were made; nevertheless, so much good resulted from its use as a neutral sign for the protection of sick and wounded soldiers, and also of those who had charge of them and the buildings in which they were lodged, that no proposal has ever been seriously made for the abrogation of the Geneva Treaty. That the badge was undoubtedly abused cannot be denied, but this only proved the necessity of making a knowledge of the powers conferred by the treaty universally known, and also placing some restriction on the assumed rights of "benevolent neutrals."

In those days the general impression seemed to be, that any man or woman wearing a white armlet with a red cross upon it was free to go pretty much where he or she thought fit, with a proud contempt of such things as military passes. A large proportion of these armlets were home-made, and had not even the official stamp of any military authority in either of the belligerent armies. Then, again, Red Cross flags of various forms and sizes were hung over innumerable houses, whether the roofs sheltered wounded men or not. This matter was rectified by an order that no such flag would be recognised unless there were a certain number of beds in the house actually occupied by invalids.

No badge has ever been more generally abused, both in peace and war, than the Red Cross, and unfortunately it has not been made a penal offence to use this distinctive emblem without legal authority, although in time of war any persons so wearing it would soon find themselves in a very unpleasant position. This ignorance has led to the use of the Red Cross badge as the recognised mark of a hospital or even the house of a private nurse, and various societies have adopted it, to say nothing of vendors of patent foods and medicines.

It cannot be too strongly insisted that the Red Cross is a military and not a civil badge, and, from a military point of view, no person is authorised to use it without official authority. The Army Medical Corps is, or ought to be, in exactly the same position in this respect as a civil ambulance corps. On the outbreak of a war in which we might be engaged with other Powers, signatories of the Convention of Geneva, either as allies or adversaries, every officer and man engaged in hospital work would have served out to him a white armlet with a red cross, authenticated with the proper official stamp. These armlets form part of the uniform on active service, and have to be returned into store at the end of a campaign.

The little Red Cross badge worn on the right arm of the non-commissioned officers and men of the Army Hospital Corps has no more significance outside the British Army than any other regimental badge. I venture to think it was an unfortunate mistake when this badge was adopted.

We have a good example of the fact that the little red cross as now worn by the non-commissioned officers and men of the Army Hospital Service is only a corps badge, and not an

equivalent to the Red Cross armlet with an official stamp : and it makes little difference to my contention that I cite a case which occurred when, the Convention of Geneva not having been adopted by both belligerents, the Red Cross could not be acknowledged as a badge of neutrality. On the recent march of British troops to Kumassi, each man in the bearer-companies of the Army Medical Corps carried a rifle and seventy-five rounds of ammunition. Although we were then opposed to savages, it was unfortunate that the Red Cross should have been displayed in any form.

I may also refer to another case where ignorance on the subject was also shown. Some of the members of the St. John Ambulance Association recently went from the Cape to Krugersdorp, their services having been accepted by the Boers. A complaint has since been made that an armed Boer had a red cross on his arm. As the Transvaal Government had not adopted the Convention of Geneva, and neither side had received official sanction to wear the badge, any irregularity in regard to its use was possible, and there could be no legitimate ground for complaining that the Convention had been violated on one side or the other.

I mention these two facts in order to strengthen my argument that the Convention of Geneva ought to be more widely known, especially in those countries where, as in our own, it has been adopted by the Government.

Great Britain having accepted and signed the Convention of Geneva cannot ignore these details.

To be of any protection as a neutral badge, it is absolutely essential that the Red Cross should be equally respected by soldiers as well as civilians. For this reason, that part of an army which the Convention of Geneva was designed to make neutral should, under all circumstances, strictly observe the conditions imposed on it by this treaty. For instance, wagons used for carrying ammunition and other warlike stores to the front during a battle will not be treated as neutral, if also employed in taking wounded men to the rear, even though each vehicle may bear a Red Cross flag. The more distinctive in appearance the transport vehicles of a hospital corps can be made, whether military or civilian, the better. It must not be thought, however, that in these days of long-range firing, the field hospital or the hospital transport can be entirely exempt from stray shots. Even a field hospital may be found in the thick of a fight. All that can be done is to select such places for dressing stations and field hospitals as may seem to be fairly secure, and in no case must troops be allowed to use a hospital as a mask for offensive operations.

I need not remind you that I am not a military man, and I am only referring to matters which have come within my personal experience.

Probably one of the most recent examples of attempting to improvise a Red Cross Society, and to place it in the field during a campaign, in which only one of the belligerents had accepted and acted on the Convention of Geneva, was afforded during the recent war between China and Japan.

With regard to this episode, I am allowed to give as my authority an interesting letter written by Surgeon-General Taylor, A.M.S., who was attached to the Headquarters of Marshal Oyama, Commander of the Imperial Japanese Army.

On the 30th November, 1894, a Chinese steamer, the "Toonan," was captured by the Japanese Fleet just inside Port Arthur. She was found to have on board nine gentlemen respectively belonging to three nationalities, namely, Great Britain, the United States of America, and Denmark. On being asked what they wanted at Port Arthur, they presented a letter for the Officer Commanding the Japanese Army, stating that they represented the Tientsin Independent Red Cross Society, and had been sent out to give aid to the Chinese wounded.

The following is the verbatim reply of Marshal Oyama:—

"Gentlemen, I appreciate the humane object of your voyage to carry wounded soldiers to Tientsin to be taken care of by your society. At the same time, I beg leave to call your attention to the plain fact that the wounded enemy's soldiers, however humanely they be treated by the army in whose hands they are, are, after all, prisoners of war, so that the carrying of them from a land occupied by one of the belligerents cannot be called a neutral act. For this reason I am sorry to have to reject your offer. Let this denial, however, be joined with the assurance that it is the rule of our army to take care of the wounded soldiers, without distinction of enemy or not enemy, so that the wounded Chinese soldiers are being actually taken care of in our field hospitals, and I ask the gentlemen to have no anxiety about the matter.

"Please to understand that communication has been made to the commander of our fleet that the steamer "Toonan," on which you now are, shall be made to leave the waters about Risjan Peninsula before 6 p.m., 30th November. (Signed) OYAMA,

"Commander of the Imperial Japanese Army."

I venture to think that this letter leaves nothing to be desired either in form or spirit, and it is an excellent illustration of the manner in which the Convention of Geneva has been adopted and is understood in Japan.

Such a benevolent expedition as the one just mentioned might, perhaps, have succeeded in passing in 1870, but "independent" neutrals will not in future be allowed to float the Red Cross flag in this manner, more especially if they do not possess official sanction from either of the belligerents and can only plead the best intentions.

The fact that this expedition was made in Chinese waters, to a port that had just been captured by the Japanese, suggests an allusion to the great difficulty that has hitherto prevented Red Cross arrangements, possible in armies, from being extended to naval warfare. A hospital ship flying the Red Cross, and anchored at a point where it could not interfere with the enemy's movements either on sea or land, would doubtless be treated as neutral by the naval and military forces of any State that had accepted the Convention of Geneva. One of the insuperable objections is, that such a vessel could not be allowed to enter a port belonging to

either of the belligerents for the purpose of landing or embarking invalids of the fleet, if the enemy were able to prevent it.

I have mentioned the Franco-German War as the first campaign in which the effect of the Convention of Geneva was experienced on a large scale. The way in which each of the National Red Cross Societies then worked reminded one of the manner in which our Volunteer Army was gradually developed. Each corps acted very much on rules of its own, which were gradually modified to suit the requirements of the military chiefs under whom it happened to be working. Some were amenable to discipline, others were not; but as all had the same object, and the field was a very big one, considerable latitude was allowed.

Since that period the military Powers, especially France, Germany, Italy, and Russia have done much to organise the Volunteer Red Cross Societies, and to bring them into harmony with their respective armies. In no future war will such freedom be allowed as was witnessed in 1870-71, and it is even doubtful if the services of neutrals from States, other than belligerents, will be allowed to intervene; or, if permitted to do so, they will have to serve under the orders of the chief of that army to which they may be attached.

About thirty-seven National Red Cross Societies have been formed since 1864. I would here draw attention to the rule laid down by the International Committee at Geneva that only one Red Cross Society is recognised for each country, colonies included, as any departure from this regulation would lead to serious complications.

Time will not permit me to describe the manner in which each of these central societies has been developed; a detailed account of the organisation and work performed by them all would fill many volumes. Soon after the first establishment of these Societies, it was admitted that, to keep the work up to the level of the requirements of war, it would be necessary to practise and prepare in time of peace; most of the Societies have, therefore, undertaken to train men and women for that large field of usefulness which is to be found in the accidents, epidemics, and disasters of all kinds in civil life.

It is unnecessary for me to describe here the very great part taken in 1870-71 by the British National Aid Society (which is our National Red Cross Society), and also the assistance it has afforded on other occasions when the British Army has been engaged. Nor is it necessary to describe what the St. John Ambulance Association has done. Combine the objects of these two institutions, and you have what the great military States of Europe are striving to obtain—an inexhaustible supply of men and women daily engaged in the alleviation of pain and suffering, from which at short notice, a well-trained, useful, and intelligent supplement can be formed for the Army Hospital service.

I hope I shall not be accused of undue self-assertion if I mention the success which has attended one step that has been taken in England towards realising this desire to train and organise a body of men and women who could be relied on, in case of necessity, to act as a reserve to the Army

Hospital Corps, and who, meanwhile, are daily employed in ministering to the relief of the sick and wounded in time of peace. I refer to the St. John Ambulance Brigade, of which I formed the nucleus when I had the honour to be Director of the Ambulance Department of the Order of St. John, and which is surely, if slowly, developing into a very useful body. We had at hand a large number of men who had been instructed in First-Aid; but something more was required, even for peace time, to give cohesion and stability to this excellent *personnel*. Several corps were therefore formed in different parts of England; and I have no hesitation in saying that this organisation can be readily extended, especially if favoured by official support. Some of these corps have been inspected by the present Director-General of the Army Medical Department and other officers appointed by him, and their reports are in the highest degree satisfactory and encouraging. I may also mention the review of the Tibshelf and Birchwood Colliery Ambulance Corps by Her Majesty the Queen at Windsor, a gracious act which will never fade from the memory of those who were privileged to take part in it.

If, as yet, I have said little with regard to female nurses, it is because they form a subject which comes rather within the province of others who are more competent than myself to speak on it, and because their training for peace, as well as for war, must be more complete and extensive than in the case of the majority of the men to whom I have just referred. First-aid nurses who have been instructed and enrolled by the St. John Ambulance Association are doing admirable service, especially in some of the colliery districts, as many surgeons will testify, but for real hospital work only a long course of training and experience, extending over two or three years, is sufficient to bring them up to a safe and proper standard of efficiency.

In the direction thus indicated I am, perhaps, an enthusiast, some may call me a fanatic; but for this object—the organisation of civilians in time of peace as a strong ambulance supplement for time of war—I have striven for nearly thirty years, and I never felt more sanguine of its realisation than I do to-day. I should like to mention the names of colleagues and friends of different nationalities with whom I have been associated, and from whom I have received the best advice and the greatest encouragement; but I fear I might omit some by inadvertence and compromise others by my zeal. One, however, I may recall without hesitation, whose loss we are still mourning, and who was regarded with affectionate esteem by his friends and associates in this country and throughout the civilised world, for his amiable qualities, professional ability, and exhaustive knowledge in all that pertains to military hospitals and ambulances and the Convention of Geneva, of which he was one of the authors. The name of Longmore is written large on every page which treats of these subjects from the time of the Crimean War to the present date; and this name, modest and unassuming as was the man who bore it, will always be held in respect and admiration wherever the victims of war are deemed worthy of the highest efforts of humanity.

It would serve little purpose to occupy more time in describing what has been done in the past, unless it can be shown how this country can make use of and improve on the experience which has been acquired. Each National Red Cross Society has been organised and developed on lines best adapted to its own conditions and circumstances. For reasons already slightly sketched, the Red Cross idea has not made the progress in this country observable elsewhere. I do not propose to mention in detail all that these different societies have accomplished in peace and war, but will limit myself to the statement that Austria-Hungary, France, Germany, Italy, and Russia offer examples of certain portions of Red Cross work which might be followed with advantage in this country. But it is in France will be found the model best suited to the actual position of affairs at which we have arrived in regard to First-aid instruction, trained nurses, and civil ambulance material. In the organisation of these means for war purposes, we are at present far behind all the States just mentioned; but, if only we can arrive at a proper understanding, we shall be soon found ahead of them all, in everything needed as a Supplemental Reserve to the Army Medical Service. It must not, however, be thought that this bold assertion refers to quantity and not to quality, but it means that out of the superabundant quantity now existing, a sufficient nucleus of most excellent quality can be obtained.

The French Red Cross Society, established in 1864, was founded on lines very different to those which it now follows, and its whole system was completely modified by the sad experiences of 1870-71. Nor has it been wholly independent of political influences and changes of Government. Be this as it may, the outcome, considered as a model of good organisation, is most satisfactory.

This society is now divided into three separate bodies, each keeping its own name and having its own rules in time of peace, but all of them controlled by the Minister of War. *La Société de Secours aux blessés des Armées de terre et de mer*, the original French Red Cross Society, was established in 1864. In 1884, a decree was passed with the object of bringing the society into harmony with the military changes that had taken place since the war of 1870-71, and authorising it to supplement in time of war the military sanitary service, to distribute gifts offered by public generosity, to establish hospitals in places that may be indicated as requiring them, to render assistance in the transport of sick and wounded soldiers, in the railway station infirmaries (a creation of the Franco-German War), and in all the auxiliary hospitals at the seat of war. Since this decree of 1884, two others have been passed, dated respectively 16th November, 1886, and 21st December of the same year. The first recognises *l'Association des dames françaises*, and the second, *l'Union des femmes de France*. These decrees limit the co-operation of the above-named aid-societies with the military medical service to the rear of active hostilities and to the national territory.

Irrespective of this assistance, the three societies are authorised to distribute to the sick and wounded any gifts they may collect. The relations of the three societies with each other and with the official

directors of the medical service are defined by the above decrees. Every establishment of the aid-societies is under the surveillance of the principal medical officer of the district in which it is situated, who also superintends all the documents and registers prescribed.

The *personnel* of the three societies is authorised to wear a uniform and the badges approved by the Minister of War. All associations in France, which more or less pursue the same object and which cannot be recognised as independent societies, are required in time of war to become merged in the *Société de Secours aux blessés des Armées de terre et de mer*. There is only one exception to this rule, and that is in favour of those strictly local ambulances whose action does not extend beyond the communes where they are established.

Already at many of the most important railway junctions on the principal lines between Paris and the frontier, not only have certain rooms been apportioned for the use of the Red Cross Society, but a large *personnel* and everything required for hospital use have been allotted for the same purpose. On the outbreak of war each of these temporary hospitals could be placed on an active footing as rapidly as the mobilisation of the army can be effected; and besides, the delegates of the society are charged with the useful duty of bringing back invalids from the front and accompanying the railway ambulance trains. These moveable and stationary hospitals form the special work of the *Société de secours aux blessés militaires* in time of war, and they offer a large scope for the exercise of national philanthropy without the danger and inconvenience to which reference has already been made.

Great attention is being paid by the French society (for I prefer to consider the three societies as one association) to the constant improvement of ambulance material: dépôts have been established in thirty-nine towns corresponding with thirty-nine territorial divisions of the army, and trials of this material are annually made at the period of the great manœuvres. For the *personnel*, schools of instruction for ambulances and nurses have been formed in Paris, and also at Marseilles, Lille, and Nancy.¹

If I have dwelt at some length on the system adopted for making the Voluntary Aid Societies in France a reliable supplement to the Medical Department of the Army, it is because such an organisation seems to be the one best adapted to English needs. It cannot be too often repeated, that no official means for treating the sick and wounded can be adequate to the exigencies of a great campaign. The medical corps of every large army must have a volunteer reserve for great emergencies. If this were so in the past, and we know it was the case, how much greater will be the strain on the Army Medical Service in the future. Even during the last twenty-five years what a change has taken place! Henceforth wars will break out with little or no notice, and

¹ The above brief description of the organisation of the French Red Cross Society is taken from the chapter on "The Convention of Geneva and its badge, the Red Cross," written by J. F., and published in the second edition of Longmore's "Manual of Ambulance Transport,"

though they may be of less duration than the campaigns and sieges of the past, the number of killed and wounded will be greater in proportion to the time. Improved small arms, long-range artillery, and quick-firing machine-guns will make it impossible to establish dressing stations in close proximity to the firing line, or to carry off the wounded during the progress of a battle. So much the greater, then, will be the need of an increase in the hospital corps as well as in the means of ambulance transport. The whole available strength of the Army Hospital Corps will have to be as near the front as possible, and the care of the sick and wounded on the lines of communication and in the base hospitals must be left to others. If this reserve be not carefully and systematically organised in time of peace, it will be a cause of trouble and vexation to the authorities at the critical moment, the *personnel* will prove insufficient and undisciplined, gifts of stores will be doubtful in quality and superabundant in quantity, and the ordinary civil hospitals will suffer in proportion, by loss in their staff and by a wasteful expenditure of good material.

In 1892 I had the honour to read a paper in this Institution on "Ambulance Work and Material in Peace and War." On that occasion, I spoke of the improvements which had been made in stretchers, and added some suggestions which I considered, if carried out, might be to the advantage of those wounded in battle. My friend, Mr. Archibald Forbes, criticised in a playful manner my interest in military stretchers, and qualified as a waste of time thoughts devoted to the subject of stretchers for the battle-fields of the future. The same able writer, in his very interesting volume entitled "Memories and Studies of War and Peace," again returns to this subject. He has done this in a manner so friendly to myself personally, that I am encouraged to ask him and those who agree with him, to give the matter a little further consideration. The military stretcher must remain the most important of all means of transport for sick and wounded men. Admitting the state of things, so forcibly and graphically described by Mr. Forbes, that will exist in the future after a great battle, in consequence of the immense number of wounded, which the altered conditions of military armaments and new methods of fighting will concentrate in exposed parts of the field in an incredibly short space of time, is there any reason why we should refrain from all attempts to do the uttermost in our power to remove the wounded to dressing stations and hospitals the moment that a cessation from the anticipated hail of projectiles may render such service possible? If the means of transporting the wounded from the field of a great battle are at present insufficient, that Government, which might neglect to make the Hospital Corps in some degree adequate to the requirements of its army, would, indeed, incur a most serious responsibility.

Mr. Forbes has quoted, in support of his views, the late Professor Billroth and Surgeon-General von Bardeleben; but I have read the published opinions of these two great surgeons in a manner quite different, and I personally knew them well enough, to feel assured that they would

have neglected no means of clearing a battle-field of wounded men the very moment it might be possible to do so.

In 1892, at the International Conference of Red Cross Societies, held at Rome, a communication made by Sir Thomas Longmore was read in support of the views expressed by Professor Billroth, and this concluded as follows:—"Everything thus tends to show that while the number of sufferers urgently requiring help will be vastly increased in future wars, the means of affording them shelter and surgical attention will be pushed back to a greater distance than has ever before been necessary. If a battle is fought on a very large scale, the number of wounded men most pitifully demanding aid will be so vast that obviously the arrangements made to meet the wants of the probable number of wounded under former circumstances will be quite inadequate to meet future needs. The question then arises, whether the system of volunteer help to the wounded by neutrals, which was, in fact, accepted by both the French and Germans during the war of 1870-71, and in principle is admitted under certain restrictions in the official regulations of most countries, should not be more largely developed, in order to meet the necessities of the wounded, in case, unhappily, hostilities on a large scale should again arise in Europe."

In a speech made by Surgeon-General von Coler to an assembly of delegates of the German Red Cross Societies, the distinguished head of the Prussian Army Medical Department made the following remarks:—"It is now universally admitted that the great task imposed on the Sanitary Corps, on the outbreak of war, cannot be accomplished without the help of voluntary assistance. This aid should go hand-in-hand with the official services; they should be constituted on the same principle and based on one solid organisation; they should unite their efforts in order to be able to perform all their duties. It must not be forgotten that with the torrents of troops one country can now pour upon another in the space of a few days, armed with the present highly perfected and terribly destructive weapons, an immense task would be instantaneously set before the Sanitary Corps, and one with which it would be impossible for them to cope, unless everything were ready beforehand for such a sudden and awful eventuality. Unity of direction in war, unity of direction in peace, that is what we need. In the same way as the Army is sub-divided in fractions of varied importance subordinated one to the other, so voluntary aid ought to be hierarchically divided, under one absolute control, whence should issue all orders and all decisions, which should also designate for each function to be fulfilled the most capable man, whose duty, even in time of peace, should be to make himself familiar with the work which would devolve upon him in time of war.

Much has already been done in this direction, in forming an instructed and exercised *personnel*; and yet the practical side, that is, the nursing of the sick, ought to be much further developed. The transport of the wounded from the hospital stations on the lines of communication, from the temporary hospitals to the railway trains; then, again, intelligent activity within the hospitals, more especially require education and

prolonged and attentive instruction. Many hospitals have opened their doors and allowed such practical work and training, and the result has been a great public gain for time of peace, as good nurses often succeed in preventing an epidemic from becoming more deadly than a war.

On the other hand, in what relates to material, a department in which it is equally necessary to be prepared beforehand, as far as it is humanly possible, the efforts of Red Cross Societies should be directed to the acquisition and perfecting of portable hospitals destined to supply the needs and unhealthiness of particular localities; and, as is the case with the *personnel*, these movable barracks can be of the greatest use even in peace time."

I have quoted Dr. von Coler at some length, because he is an authority whose words will carry as much weight here as in his own country.

Do we possess in England the means, *personnel*, and *matériel*, out of which such an effective supplement to the Army Hospital Corps can be formed? This question may be unhesitatingly answered in the affirmative. We possess it in a degree that has never been attained in any other country, much as we can learn from other countries in regard to its organisation and extension to the requirements of war.

Leaving out the Volunteer Medical Staff Corps, which has its own defined duties to perform, there are two institutions which I have already named. These are the St. John Ambulance Association and the British National Aid or Red Cross Society.

Besides these, there is another most valuable and indeed indispensable element to be found in the existing organisations of female nurses. We all know the valuable patronage and practical assistance given to the British National Aid Society by the Princess of Wales during the last Egyptian Campaign, and the great interest taken by Her Royal Highness in everything that concerns the selection, training, and general welfare of female nurses. We also know, from the evidence of official records, that it has long been the aim and desire of the Princess Christian to form a national reserve of highly-trained nurses for the Army Hospitals; and in this Her Royal Highness has already in a great measure succeeded, through negotiations entered into with several of the large hospitals of the metropolis. Such a project, if fully carried out and sanctioned by the authorities, would provide a reserve of experienced nurses which would be available at short notice as an efficient auxiliary of the Army and Navy Medical Services.

It would be out of place on this occasion, and presumptuous on my part, to submit any scheme by which these three bodies, so distinct and independent in time of peace, could be organised for the work that has been indicated for time of war; but I may claim that for twenty-five years I have advocated such an amalgamation, and having carefully watched the working of Red Cross Societies in France, Germany, Italy, and Russia, I have satisfied myself that the combination is possible, practicable, and desirable. It need disturb no programme laid down for peace-time, but, on the contrary, it would stimulate to further efforts, by proving that on

the broad field of humanity we can labour both in peace and war; and that in preparing ourselves to meet the accidents and epidemics of civil life, we are, at the same time, forming a valuable reserve, both in *personnel* and *matériel*, to the official means which exist for alleviating the sufferings of our sick and wounded soldiers and sailors in time of pressing rational need.

Briefly summed up, our aim should be:—

- a. A more general appreciation of the Convention of Geneva, which was signed and adopted by this country more than a quarter of a century ago, then pigeon-holed at the Foreign Office, and which has since remained almost a dead letter.
- b. The recognition of the Red Cross as a military badge of neutrality, the abuse of which in time of war inevitably entails certain serious penalties, and which, therefore, in time of peace should be carefully protected.
- c. The organisation of a powerful Red Cross Society, to be formed from the institutions already indicated, acting within their present limits in time of peace, but entirely under military control for all war purposes.

Captain Sir ALFRED JEPHSON, R.N. (Retired): I hope some good will come of this important lecture, and I think the importance of it consists in the fact that if it is to be productive of any good it must be acted on whilst we are in a state of peace, because if once war breaks out in which this country is involved to a large degree it will be too late to do anything. I am quite satisfied of the correctness of what Mr. Furley has said as to the means in this country of organising a large society to aid the Army Hospital Corps in case of an outbreak of war. We have an immense amount of material and *personnel*, but it requires organising and adapting to the Army and to be brought under strict military discipline. In future wars you will not be able to do as was done, I understand, in the war of 1870, where newspaper correspondents gallantly mounted the Red Cross and pushed to the front to gain information, and where, I believe, even nurses were seen well up to the front instead of being where they ought to be, in the rear. I do not say they went there to fight—perhaps it was the natural interest and curiosity which is characteristic of the sex, but I am told that that was the case. Unfortunately, I think, the badge of the Red Cross has been hawked about the country to almost a pitiable degree, and instead of any penal clause being enacted to keep it sacred so as to command the respect of contending armies it is now the sign of patent pill makers, jelly makers, and such like people, and I am afraid it is too late to correct that great mistake. I should like to say, speaking officially as Secretary General of the Order of St. John of Jerusalem, that I am quite sure if any practical method could be adopted as a result of this lecture to-day the St. John Ambulance Association would only be too glad to afford every possible assistance that it could. I hope the outcome of this meeting may be that some gentlemen who are interested in this great question will give their names in to Mr. Furley, who is one of the greatest authorities in the world on this subject, that they will study this question and formulate some scheme of organisation for this great association, which after it has been thrashed out might perhaps be submitted to the War Office, and, if it is thought necessary, to the Government, who I have no doubt will support it.

Major ANDREW MACLURE, late 7th Middlesex (London Scottish) V.R.: I have great pleasure, my lord, as president of the Volunteer Ambulance School of Instruction (formerly Volunteer Ambulance Department), in supporting

my old friend Mr. Furley in this most important matter. For the last twenty years we have been organising amongst the Reserves and Volunteers, and we have now nearly 10,000 men trained. The work is not only carried on in England, but also in Canada and China, at Hong-Kong by my friend Dr. Cantlie, and also out in Australia and New Zealand. It is all for the same object, to attend to the wounded in case of war. If there is some possible way in which we can combine and assist the Army Medical Department in this most important work, I am sure we shall all be ready to do so. I thank Mr. Furley for his very excellent paper.

Colonel J. S. YOUNG (Dep. Comm. Gen., Retired): Mr. Furley has added another valuable record to the already long roll of his distinguished services in the cause of humanity by reading this important paper to-day. At no time could it have been more appropriately launched before the public than now when the nation has been, by recent events, stirred from end to end with the apprehension that the time may come, and may be brought about any moment by unforeseen circumstances, in which the necessity will arise of putting our means of defence into thorough order and efficiency. But, although I know my friend Mr. Furley very well, having had the honour to claim him as a comrade at the very interesting period of the Franco-German War, when we were both together at the German Army Headquarters in Versailles, and knowing Mr. Furley has been conversant with all that appertains to the interests of the sick and wounded in war, I hope he will forgive me for saying that he fairly takes away my breath when he propounds such a large scheme as he sets forth in his paper. Happy as I should be to work with him in the same spirit that we have always worked together, I cannot help feeling that, perhaps as a civilian and one untrammelled by ever having fulfilled responsibilities in an official capacity, he treats lightly the difficulties which appertain even to the launching of such a scheme as he has put before us to-day. He has quoted the instances of France and Germany. I think those very instances will give to this audience at once a practical illustration of the difficulties that lie in the way of any speedy realisation of a complete scheme such as Mr. Furley puts before us, for anyone who knows the circumstances of Germany and France knows that the whole nation in each case is armed to the teeth for a specific purpose—for the purpose of defence against its neighbour, who is only separated by an imaginary geographical line. Every individual, every centre geographical or strategical, is organised in connection with the general scheme of defence for the country under the military authorities. Therefore, the first point I would put before Mr. Furley for consideration to-day is, that while he may go on instructing public opinion so as to bring pressure upon the authorities to take action, it is to the authorities that we must look for taking the practical initiative in working out any such scheme as that which he has brought forward. In the first place, it is perfectly impossible, I submit with all deference, for a civilian *quâ* civilian upon his own initiative to map out districts, to allocate hospitals and their equipment. But this is still more the case, I submit, when you come to the *personnel*, and have to organise those according to their duties, for when you come to this matter of duties you come to the line which is the most difficult to apportion between the active army and those who are in the civil population. But while this is so, I do not want to enhance too much the difficulties, because I believe there is a spirit abroad, which I referred to before, that it is necessary to put our means of defence into something like organisation. There is one little point, to illustrate what I have been saying as to instructing public opinion, on which, I think, we should make a departure at once, that is, by instructing people as to what the Geneva Cross really means. Now, the authorities, I think, themselves are the greatest offenders in connection with this matter. They have permitted the use of the Red Cross upon our Army Hospital Corps as if it were a sign which they ought to wear officially. I demur to that entirely. I say it is most mis-

leading. The Geneva Cross ought never to be worn except in the field of active war operations. Therefore, I say, the very first thing to be done is to bring home to the military authorities a better understanding of the Geneva Convention, and get them to take at once the step of abolishing the use of the Red Cross on the uniform of the Army Hospital Corps. Again, with regard to the civilian population, this may also have its application. I think I have seen, if my eyesight has not deceived me, Volunteers marching through the metropolis with the Red Cross on their arms and in their hands a rifle. The two things are absolutely in contradiction to one another. The Red Cross is to give you such immunity as may be possible from those dangers which attend the actual use of fire-arms by combatants as a weapon of offence or defence. Then I think we might go further, and Sir Alfred Jephson gave me the thought as he was speaking, in regard to the use of the Red Cross in connection with advertisements. We know what has been done with regard to naval and military uniforms. It is not so very long ago that it was a perfect disgrace to see sandwich men using Her Majesty's uniform in carrying advertisements of something perhaps more or less questionable. I see no difficulty in the slightest degree in the Government of the day, understanding what the Geneva Convention is, and that the Red Cross is the practical sign of the privileges which are conveyed by that Convention, passing a short Act of Parliament making it prohibitory for tradesmen or anyone else to use the Red Cross. I think there is another difficulty in which I have found myself in regard to planning out such ideas as Mr. Furley has urged us to take. If there is one power in England which is more potent than another, it is philanthropy. I myself have had the honour to represent our British National Society for Aid to Sick and Wounded in War on various occasions abroad, and many and many a time, against my better judgment, I have been forced by the irresistible wave of public philanthropy at home to commit some of the indiscretions which Mr. Furley has pointed out. I have never had an opportunity of publicly confessing my sins before, but I am glad to take this opportunity to illustrate that there are some kinds of forces which we cannot disregard, and one of these is the philanthropy of England. In the expedition to Khartoum in 1884-5, I even believe it overcame the opposition of the military authorities, who were by no means enamoured of having to carry out some of the objects desired by public philanthropic opinion. These are just a few observations which, as a practical man, seemed to occur to me; but at the same time, I do wish to reiterate that the present time is most opportune for making any new departure in regard to providing for the necessities which Mr. Furley has pointed out, and I do hope that this discussion to-day, and the reading of the paper, may lead to some practical effort being made.

Surg.-Lieut. G. R. J. FLETCHER, 22nd Middlesex (Central London Rangers), V.R.: Not being aware this lecture was taking place this afternoon, I arrived late, and not having been here at its commencement have not heard all that Mr. Furley has said. As far as I could gather, Mr. Furley suggests that the St. John Ambulance Association shall take the place in war of those organisations that we ought to have in our Volunteer Army. Mr. Furley looks upon the use of this great society which he would form as an enlargement of the National Red Cross Society. The invasion of England is the situation considered by Mr. Furley, and the question I want to ask him is, Where in the scheme of home defence does he propose to utilise the St. John Ambulance Association? It seems to me that this association is not one which could be brought to the front, nor perhaps in these days will it be possible, except in certain positions where there is cover, to clear the field till after an action. If it is a question of their use in field hospitals, or hospitals which may be formed upon the lines of communication, the point is, whether it would not be better to utilise the large material we have in the nursing staffs of our general hospitals and associations of nurses. There is also the large number of medical students—what they are all going to do, goodness only knows—who might perhaps be able to do better work if they were organised than the St. John Ambulance. I would ask

the lecturer what experience can members of the St. John Ambulance have of hospitals and the large knowledge and training necessary to make an efficient nurse? Mr. Furley says the number of wounded on the field of battle would be very largely increased. That is the opinion of some. Dr. Fischer, of Berlin, in a paper which he published last year on the removal of wounded during war puts on 30 per cent. These sensational estimates are giving way now to more sober ones. Thirty per cent. casualties Baker Pasha considered the breaking strain of the best troops, and such a percentage has only been reached on two occasions. Surgeon-Captain Melville in the *Journal of the United Institution of India*, for December, thinks the number of wounded will be somewhat increased, and puts it at 10 per cent. The number of killed, however, will be probably increased from one to six, to one to three, and if that is so it will rather lighten our labours than make them heavier. It seems to me that we want some definite lines to go upon. It is all very well to say we require more than we have. We all know that, but what we want to know is, How you are going to utilise these associations for the special purposes required? As far as I can see it can only be done by training them specially in hospitals in time of peace, and that, I am afraid, for the ordinary civilian population is impossible. Besides this there is the question of organisation. With regard to some remarks that Colonel Young made as to Volunteers carrying a rifle and wearing the Geneva Cross, I think he will acknowledge that he has not seen that lately. The authorities recognised some time ago that the fact that a regimental bearer wearing the Red Cross was an anomaly, and they abolished its use since the 1894 Regulations. It is the fault of the Colonel or perhaps the medical officers if any man is now seen wearing it; unless, indeed, he belongs to a bearer company, and then he has no right to carry the rifle. With regard to the question of the Red Cross worn by the Medical Staff Corps (called the Army Hospital Corps by several this afternoon, though that title has been dead for ten years), as this corps is utilised solely for carrying and nursing the wounded, there can hardly be any objection to its members wearing this badge. In the case of war against barbarians, they have to carry rifles for their own protection; and as the Geneva Cross is not understood or recognised by the enemy, there can be no objection to its use. Undoubtedly, there is a great abuse of the Geneva Cross as a badge in England, and if this meeting does something towards abolishing its misuse on advertisements and a few other things, it will have done a considerable amount of good. Major Maclure, an old friend of mine, has rather patted us on the back with the Volunteer Ambulance Department. I do not know that department, though I know the Volunteer Ambulance School of Instruction, of which Major Maclure is President; it is a school which has done a great deal of good work, but I am sure Major Maclure will pardon me if I suggest that it has no right to speak for the whole of the Volunteer force. What I would ask Mr. Furley is, on what lines he proposes to utilise this great St. John Ambulance Association for the welfare of the wounded in case of invasion?

Mrs. BEDFORD FENWICK: Lord Knutsford, ladies, and gentlemen,—Women have not been requested to speak in this discussion; therefore, perhaps I ought to apologise for saying a few words on the subject. But, as a trained nurse, I should like to make a few remarks with regard to the organisation of a Volunteer corps of nurses. In 1889, I drew up a scheme and submitted it to the head of the medical department of the War Office, but as I have heard nothing since from the department, it, like other important documents which have been mentioned, I presume, has been pigeon-holed. Some two years ago the question of the formation of a Volunteer corps of nurses was again raised, in connection with the Royal British Nurses' Association, and I believe that Her Royal Highness Princess Christian is now occupied in considering the practical details of such a scheme. I do not think it has yet been organised, but there is every reason to hope that in due time it will be carried out successfully. The suggestion made by the last speaker that it was impossible that really efficient nursing can be done by persons who are

untrained, I think, is beyond dispute. What we want with regard to the formation of a corps of nurses is that the authorities should be able at a moment's notice in time of war to put their hands upon a number of the most efficient nurses, thoroughly trained women; and, of course, these women would have to be under military discipline. But I quite believe with the help of these other bodies which have been mentioned by Mr. Furley some arrangement could be made by means of which a Volunteer corps of nurses could be thoroughly equipped and kept in readiness, so that at twenty-four hours' notice we should be able to supply the place of our trained sisters and nurses in the hospitals at home or abroad, or, if necessary, to send them on active service. I do not think any other system would be really efficient. It is not only useless, but it would be wrong, because it would be fraught with dangerous results, to place the nursing of the sick in the hands of untrained nurses.

Dr. J. EDWARD SQUIRE, M.D.: May I be allowed one word, to bring the speakers back to what appears to me to be the keynote of Mr. Furley's paper, *i.e.*, organisation? My reason for speaking is, that in the few remarks we have heard, we have had on every side a representative of some particular body, and seeing that all these different speakers have represented some separate and distinct body, we see the very need that Mr. Furley has spoken of for organisation. We have the British Red Cross Society, which remains in abeyance, except when a campaign brings it into temporary vitality again. We have the St. John Ambulance Association always with us; we have the British Nurses' Institution; we have the Volunteer Medical Staff Corps; the Volunteer Ambulance Department; the Volunteer Regimental Stretcher Bearers. We have associations of all kinds, all of them capable of doing good work, and all unable to do what they would willingly undertake, for want of organisation. And so I think the main thing we have to consider, is, How can we organise these various bodies, so that each may be available in case of emergency? To my mind, the British Red Cross Society is the body to do the organisation; the other associations to which reference has been made are the bodies to do the training.

Dr. BEZLY THORNE, M.D.: I feel perfectly confident that if the hint thrown out by Mr. Furley and others were attended to, and the authorities would give an idea of the lines on which the desired organisation should be carried out, there would be no difficulty whatever in completing in the course of a very few months the organisation required for the nursing of any great central hospital or base hospitals which the military authorities might think necessary to have furnished in time of war or invasion. The whole question is waiting for the encouragement and direction of the authorities, and if that once be given I feel confident that the whole question can be settled very quickly as regards the provision of a proper nursing staff, which, as has already been said, should consist entirely and wholly of those who have had a thorough hospital training.

Mr. FURLEY: I need not detain you very long in reply. I am very glad there has been some little discussion. With regard to the remarks of my friend Colonel Young, he seems rather surprised at the very large scheme I placed before the meeting. I think we need not discuss the matter any further here, as he and I in the course of conversation will be able to settle that question, and I feel sure I can show him that it is not such a very large undertaking as he imagines. With regard to the remarks of Surgeon-Lieutenant Fletcher, I am only sorry that he did not hear the commencement of the paper, because he would have then been satisfied that I did not come here with any intention of putting the St. John Ambulance Association forward in too prominent a position. He would have heard that I mentioned other important associations, and put them all on an equality of usefulness; and I think there would not be the slightest difficulty in organising such a scheme as I have ventured to propose, especially when we have before us the organisation now existing in France, of which I have given rather a long

account. Of course, as a very old member of the St. John Ambulance Association I should be very glad if work in this direction could be found for that institution, but I certainly would not leave out one of those useful bodies to which I have referred. I do not think there is anything further that requires an answer.

The CHAIRMAN (Lord Knutsford): I understand it is the practice here in asking you to return a vote of thanks to Mr. Furley for his most excellent and able address, to close, as it were, the discussion by saying a few words. Certainly upon this occasion very few words are necessary, for I think it cannot be doubted that there is a very substantial adhesion on the part of all present to the views that have been stated by Mr. Furley. One gentleman, no doubt, thought that Mr. Furley went too far, but it is always safe to have a margin upon which you can retire and which you can concede to the other side. I have no doubt Mr. Furley and Colonel Young together would very soon arrange matters. It appears to me that Mr. Furley had two objects in view in delivering this address. The first was a very important one, viz., to recall to our minds the principle of the Convention of Geneva of 1864. It is quite clear from his address that the principle has been lost sight of, perhaps because fortunately we have not since that date been engaged in war with belligerent Powers who have become parties to that Convention. But it is well worth remembering that the working of the Convention of Geneva, that is to say, the protection and the neutral position which are given under it to those who are relieving the sick and wounded in war, that working only commences when war is declared between belligerents who have become parties, either in 1864 or subsequently, to the Convention of Geneva, and that with the cessation of war all active operation of the Convention of Geneva ceases. That seems to have been forgotten, and what also seems to have been forgotten is that there are certain conditions attached by the Convention of Geneva to those who desire to obtain protection and neutrality under it. Those conditions have been pointed out by Mr. Furley, and they must be observed. There are many persons who seem to have thought that because they were members of Red Cross Societies or Aid Societies or Ambulance Orders, and indeed many people who were not members of any such society have seemed to think, that they could have the protection which is secured by the Convention of Geneva to those who give assistance to the wounded in time of war if they merely tied an armlet round their arms. They supposed that by doing this they were satisfying all that was required by the Convention of Geneva. The sooner that delusion is disposed of the better it will be for all concerned. It cannot be too strongly urged, as Mr. Furley mentioned at the beginning of his address, that "the Red Cross is a military and not a civil badge, and that no person is authorised to use it without official authority." That is, I think, the first object of his address, to recall to our minds the operation of the Convention of Geneva. And the second object of his address is what has been urged by many others present to-day, the immense importance of organising in times of peace societies which train up men and women to hospital and ambulance work; and in passing I may observe that I most entirely concur in what has been said by Mr. Furley as to the importance of having women who have been trained to hospital work. The point Mr. Furley urges is that we should in times of peace organise those societies so as to have trained men and women ready to act when war breaks out. There is an old saying that a poet is born and cannot be made: the exact converse applies to our adept in the relief of the wounded. Certainly no man or woman has been born an adept, and it requires a continuous careful and close training to make a skilled adept in giving such relief. It is to these societies that we must look for the providing of trained men and women ready to take up their duty in time of war. It seems admitted by the foreign authorities to whom Mr. Furley has referred, that the medical corps of a great army—however able and admirable they may be, and no one for a moment could doubt the ability and good work and energy of the medical corps of our

Army—must have a Volunteer Reserve in time of emergency. I think it was only two or three years ago that Lord Wolseley, the present Commander-in-Chief, in addressing an ambulance brigade he had inspected at Nottingham, fully admitted this, and he spoke of the work done by those societies as of the greatest use and likely to prove of the greatest advantage in time of war, supposing there was any invasion of this country. It is therefore important that we should, if we possibly can, after hearing this lecture arrive at some plan of organising and getting the co-operation of these societies, so that if unfortunately war should break out we should have a good Volunteer Reserve of trained men and women to assist in time of war. With these very few words I will conclude by asking you to unanimously give a vote of thanks to Mr. Furley for his excellent address.

THE 2ND BRIGADE IN THE CHITRAL RELIEF EXPEDITION, 1895.

*By Major W. G. HAMILTON, D.S.O., East Lancashire Regiment
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[Prefatory Note.—Some excuse seems necessary for presenting now an account of operations which have already become ancient history. The following notes were, however, written, and almost completed for publication, last January, since which time the exigencies of Aldershot soldiering have left but little leisure or inclination for the labour of the pen.]

THE Chitral Relief Expedition has not lacked historians. During the operations, the doings of the two forces moving to the relief of Chitral were reported day by day, with more or less accuracy and fulness, by several newspaper correspondents, and more recently the whole series of events have been presented in several works by authors well competent to deal with the subject. These writings, however, treating with the question as a whole, and intended for the general public, of necessity omit many facts and details which possess possibly a purely military interest; but which, though unimportant as affecting the broader features of the campaign, may still be considered worthy of record in a technical journal.

It is, I think, the record of such details which we miss in the majority of military histories. A general statement of the broad facts of strategy and tactics may serve to train us as generals, but a knowledge of the details, and some insight into the actual working of a brigade or a battalion on service seems more likely to be of use to the majority of officers. With this for my excuse I have ventured to record the movements and actions of the 2nd Brigade of that force which, under Lieut.-General Sir Robert Low, conquered Swat and Jandol, and thus led, in considerable measure, to the raising of the siege of Chitral.

It will be borne in mind that this account is written solely from the limited point of view of a brigade staff officer, and is purposely restricted to a statement of facts known to the writer personally, or ascertained on the spot at first hand. All criticism has been omitted; first, because criticism from one in my position would be entirely out of place; and, secondly, because any judgment on the action of others formed without the most full and minute knowledge of every detail of information and circumstance which led to such action (a knowledge under existing conditions practically unobtainable) is, I think, of very little value.

The 2nd Infantry Brigade of the Chitral Relief Force was composed of two British battalions—the 2nd Battalion King's Own Scottish

SKETCH MAP OF OPERATIONS



Scale 1 Inch = 24 Miles

Borderers, and 1st Battalion Gordon Highlanders; and of two native battalions—the infantry battalion of the Queen's Own Corps of Guides, and the 4th Sikh Infantry, both belonging to the Punjab Frontier Force. No. 2 British Field Hospital, and No. 35 Native Field Hospital were attached to the Brigade. The two British battalions and the field hospitals were stationed and mobilised at Rawul Pindi. The 4th Sikh Infantry were at Bunnū; the Guides Infantry at Hoti Mardan, their permanent station, only 20 miles from the frontier against which the advance was directed.

Colonel H. G. Waterfield, Colonel on the Staff, commanding at Ferozepore, was appointed to the command of the Brigade with the rank of Brigadier-General.

One or more batteries of mountain artillery, one or more companies of Bengal sappers, as circumstances required, and a detachment with two Maxim guns from the Devonshire Regiment, were attached to the Brigade throughout the time it was actively engaged against the enemy.

The *personnel* of the Brigade was excellent. The British battalions were composed of acclimatised soldiers, in good health and condition. The majority of the officers, but few of the men, had seen previous service. When it is said that the two native infantry battalions belonged to that distinguished body of practical soldiers, the Punjab Frontier Force, it will be understood that no finer troops for the business on hand could have been chosen. Nearly every man wore the frontier medal with one or more clasps, for service on the N.W. Frontier, and a knowledge of every detail of active service across the border was by habit and training thoroughly engrained in all ranks. The native officers, accustomed to exercise the responsibilities of sole command on detached duties, seemed to possess the power of independent initiative and decision in a degree not invariably found among their class in the native infantry.

The British troops were armed with the Lee-Metford rifle, .303 bore, using cordite; the native troops with the Martini-Henry .450 bore, and black powder. The two Maxim guns of the detachment of the Devonshire Regiment were .450 bore, of date 1892 and 1893, also firing black powder. One gun, its carriage, and 300 rounds of ammunition were carried by one mule, the carriage weighing 90 lbs. only. This carriage was of the tripod form, and was the invention of Captain Peebles, who commanded the detachment. The firer sat on a small attached seat, and thereby steadied the carriage. Each British battalion had also one Maxim gun attached, that belonging to the K.O.S. Borderers was a .303 weapon, firing cordite. The gun only reached the battalion three or four days before proceeding on service, and its carriage was then quite unsuited for mountain service. A special carriage in the form of a small iron table mounted on four legs was made from the design of Lieutenant McAlister, K.O.S. Borderers, by Mr. Buckland, in the Rawul Pindi Railway workshops, in the very short time available, and proved thoroughly satisfactory both in a trial on the range, and on service. In this case the gun was carried by one mule, and the carriage by another. The Maxim gun of the

Gordon Highlanders was .450 bore, weight 60 lbs., and fired black powder (Mark II.). This gun also only reached the battalion shortly before going on service, and a carriage designed regimentally was made for it in the Rawul Pindi Railway workshops, at the same time, and with the same rapidity as in the case of the K.O.S. Borderers, and also proved satisfactory. This carriage weighed 130 lbs., and was in the form of a tripod stand, with a seat on the rear leg. The gun and carriage were carried on separate mules. Had it not been for the energy and ingenuity of the regimental authorities, seconded by the cordial assistance and constructive skill of the railway staff, the services of these two Maxim guns would have been lost to the expedition, as no suitable carriages were to be obtained from the Government arsenals.

On the 15th March, 1895, the order (issued the previous afternoon from Calcutta) was received by general officers commanding concerned to mobilise the 1st Division of all arms for service. The 26th March was named as the first day of the general railway concentration, and on this date, in accordance with the previously-arranged scheme of mobilisation, the units of the 2nd Brigade stationed at Rawul Pindi, entrained at that place and arrived at Nowshera on the morning of the 27th March. The staff of the Brigade having concentrated at Rawul Pindi, had left that station by special train, and reached Nowshera the previous day. Owing to the great strain on the railway service previous to and during the concentration of troops, the troop trains arrived from two to four hours late, but beyond this there was no hitch in the arrangements. Having detrained, the troops of the 2nd Brigade marched at once to their allotted camping ground, about two miles north of the cantonments on the Hoti-Mardan road, and pitched camp.

For the information of those who have not been recently on service or at manoeuvres in India, it may be mentioned that the tent equipment used by troops British, and native (except native cavalry, who supply their own camp equipment), is the regulation "general service tent," single fly, weighing 160 lbs. (one mule load). It is supported by two jointed upright poles and a jointed ridge pole, the tent fly coming almost to the ground at the sides, and the ends being closed by flaps. The ground plan is 16 feet square, and it accommodates sixteen men. It is a very portable tent, easily packed and pitched, and makes a compact camp. The regulation space occupied by the tents of a British infantry battalion (exclusive of officers' tents, transport, etc.) is 122 yards front by 85 yards depth, but for a temporary camp this can be curtailed to 70 yards by 60 yards, still allowing practicable intervals. A native infantry battalion takes even rather less room. It is apparent, however, from the dimensions that the tent is rather a tight fit for its occupants with their full kits. It affords sufficient protection from the sun in a temperate climate, but the single fly is too thin to act as an effectual covering against a powerful sun such as was experienced in the valleys of Swat and Jandol, at an altitude of about 2,500 feet, during the months from May to July. It is waterproof against a moderate shower, and when thoroughly wetted; but heavy rain

on a dry tent comes through it like a sieve, and continues to do so until the fly is well soaked. The men, therefore, when rain threatened, used to wet the tents all over first, and so make them more or less waterproof.

28th March.—On the 28th March the 4th Sikh Infantry marched into camp from Peshawur, and joined the Brigade.

29th March.—The Transport available for the advance not being sufficient to provide carriage for tents and kits on the authorised field service scale, orders were received to leave behind all tents (except those of the field hospitals) and kits, and chargers, in excess of the reduced scale (given below). All such surplus stores were therefore packed this afternoon in one of the empty barracks in cantonments, to be forwarded on whenever transport could be provided, and the Brigade bivouacked that evening on the camping ground.

The scale of baggage allowed was as follows:—

Staff Officers	80 lbs. each, <i>i.e.</i> , 2 to 1 mule.
Other British Officers 53½ „ „	3 „
Warrant Officers .. 40 „ „	4 „
Native Officers .. 32 „ „	5 „
Staff Sergeants .. 20 „ „	8 „
British and Native } N.C.O's and Men }	16 „ „ 10 „
Followers	10 „ „ 16 „

Staff officers, commanding officers, adjutants, and the two senior officers with each field hospital, were allowed one charger, and half a pony apiece, but no other officers were allowed chargers or ponies.

The Brigade continued on this scale till the beginning of May, when the tents and spare kits reached us in Jandol. The allowance of kit was sufficient for a month's rough campaigning, and the absence of tents and all superfluities certainly made movement free and easier to all parties concerned.

By curtailing in other directions nearly all officers were able to take small *tentes d'abri*, sheltering one or two lying down. The men rigged up shelters similar to *tentes d'abri*, with the waterproof sheets forming part of their service kit, two stout sticks about 3 feet high acting as poles, with light cord for ridge pole and ropes. Some such covering was essential, even in fine weather, as on account of the heavy dew at night sleeping in the open air was to be discouraged. This description of shelter has been used frequently on recent expeditions on the frontier, and has practically obtained the dignity of a sealed pattern; two suitable sticks are, however, necessary to each shelter, and these were not always found procurable when bivouacking in cultivated valleys or stony hills. They ought, therefore, to be carried along, and are more serviceable when regularly made beforehand and stored as part of the mobilisation equipment. This had been done by one battalion at least on this expedition.

Considering that the excellent waterproof ground sheet is almost invariably converted on service in India into an indifferent *tente d'abri*, it is certainly open to question whether it would not be preferable to

substitute for the waterproof sheets, or a proportion of them, regular *tentes d'abri* of waterproof canvas, or sheets of similar material capable of being hooked or fastened together. These would fulfil every purpose of a ground sheet if required, and give infinitely better overhead cover than is afforded by the present waterproof sheet, with a saving in weight.

30th March.—The Brigade marched at 3.30 a.m. along a good metalled road to Hoti Mardan, and bivouacked beyond and on the banks of the Kalapani river on open sandy soil.

The ground allotted being limited as to front, but not in depth, the brigade bivouacked in line of battalion columns, on a front of 50 yards per battalion, with 30 yards interval between battalions. All transport and impedimenta in rear. This formation of bivouac was adopted on several subsequent occasions, with such modifications as were required by local circumstances, and was found a convenient method where a strong front was desirable, and all-round protection unnecessary.

31st March.—Remained in bivouac at Hoti Mardan. Hoti Mardan is the cantonment of the Queen's Own Corps of Guides, a neat and well-kept little station, well-timbered and with beautiful gardens, now ablaze with roses. It stands like an oasis in the midst of the Eusafzai plain, level and almost treeless but now green with crops, which stretches up to the bare hills and rocky boundary of the northern frontier.

As the Corps of Guides, who are permanently cantoned at Hoti Mardan, will be frequently referred to hereafter, it may not be amiss to describe briefly who and what they are. The Queen's Own Corps of Guides forms part of the Punjab Frontier Force, and consists of a regiment of cavalry and a battalion of infantry, composed of the best fighting material of Northern India, organised in class troops or companies. For instance, in the infantry of the Guides are a company each of Dogras, Gurkhas, and Afridis, respectively, Sikh companies, and companies of Pathans, other than Afridis. The speciality of the corps is that trans-border men from various and distant tribes are enlisted, so that it would be hard to find any district beyond the North-West border unknown to some members at least of the Corps of Guides.

1st April.—All the troops being concentrated, the advance of the three brigades towards the frontier commenced to-day. The strength of the 2nd Brigade on this date was as follows:—

Corps.	Fit.		Unfit.	Transport.	
	British Officers.	Other Ranks.		Camels.	Mules.
2nd K.O.S. Borderers... ..	24	768	<i>nil.</i>	49	155
1st Gordon Highlanders	23	798		50	153
Guides Infantry	10	664		34	128
4th Sikhs... ..	9	650		35	130
No. 8 Mountain Battery	5	104		—	103*
	71	2,984		168	669

* Exclusive of 154 native rank and file and 144 battery mules.

In addition to these were the two field hospitals (about which exact statistics were not recorded), and 1,593 camels carrying twenty days' supplies for the Brigade. It took exactly three hours for the whole of the above troops and transport to file off on leaving Hoti Mardan, whence we marched this day for Jelala. The road was good though unmetalled. The Brigade bivouacked at Jelala, the frontier post, in the same formation as before, with the 3rd Brigade close in rear. At 9.30 p.m. divisional orders were verbally issued in the 2nd Brigade camp to brigadiers, directing the 2nd and 3rd Brigades to march at 4 next morning with three days' provisions and cooking pots in rear of each unit, and the remaining supplies in rear of the troops of the 3rd Brigade, modifying previous orders to convey the whole twenty days' supplies for the Brigade in rear of the Brigade.

Some other modifications of less importance were made, but the new order necessitated three days' supplies of all kinds being drawn by each unit from the Brigade commissariat supplies, and packed ready for a start before daybreak. This it was found impossible to do in the time. The evening already dark and lowering, closed in heavy rain about 10 o'clock, which turned the bivouac into a veritable slough of despond. The commissariat officers, assisted by fatigue parties, worked their hardest in the mud and rain to sort out the several articles of supply forming three days' rations for British and native troops and animals, but to no avail. It was difficult at best to distinguish packages at night, and the dim lanterns flickered or went out altogether in the storm. Between midnight and 1 a.m., further orders were received to postpone the march till daybreak at any rate. I took the order round the Brigade, during a temporary lull in the storm, and found all damp and by no means overcome with sleep. The commissariat officers were struggling on with their task, having made little or no progress after three hours' hard work. When, however, light came, and the rain abated, the job was successfully tackled, and all was ready before we marched next morning.

From Sir Robert Low's despatch it afterwards became apparent that it had been his intention, had not the storm interfered, to reach Durgai by 8 a.m. or so on the 2nd, and to attack the Malakand the same day, but nothing was known of this at the time.

2nd April.—At 7.45 a.m., under a lowering sky, the march began, the cavalry having trotted on ahead some time previously. The order of march of the baggage was as follows:—

In rear of each unit:—

1. Ammunition, first reserve.
2. Water mules.
3. Entrenching tools.
4. Cooking pots and utensils.
5. Dandies and riding ponies.
6. Three days' rations.

The troops of the 3rd Brigade followed the 2nd, and in rear of the

3rd Brigade came the remainder of the baggage in the following order, that of the 2nd Brigade leading:—

1. Field Hospitals.
2. Ammunition, second reserve.
3. Kits.
4. Remainder of supplies (*i.e.*, for seventeen days).
5. Spare animals.

Beyond Jelala the road had been improved to a certain extent up to Shergarh (about 6 miles), the last village our side the border, by the 23rd Pioneers and Sappers, whom we found here. Beyond Shergarh the road became a mere track which wandered irregularly over level cultivated country, scarred by occasional deep ravines. Some four miles on, Sakot or Shkakot was reached, the first village across the border. The inhabitants were Ranizais, one of the Swati clans, but the headmen had made their submission before we arrived. After a short pause, during which we heard to our great surprise that the 1st Brigade were only a mile away to our right and were marching towards us, the Brigade moved on again in drizzling rain some three miles to Durgai, and took up bivouacs on a stony slope close to the village. The spurs of the hills here began to close in, and form the entrance to the valley leading to the Malakand Pass. At the foot of the first of these spurs the Brigade bivouacked.

In spite of its proximity to our border, and although only 28 miles from Hoti Mardan, a British cantonment occupied for the last forty years, the country we were now in was practically a *terra incognita*. The very position of the large village of Durgai was doubtful, and all information about the Malakand Pass and beyond was, it is not too much to say, of the very vaguest nature. Owing to the rigid enforcement of the "close border system," a system happily relaxed since the completion of this campaign, the intelligence department had to depend for information almost entirely on the reports of unobservant and illiterate native traders. McNair, a subordinate official of the survey department had, it is true, travelled down by this route from Chitral, disguised as a native, many years ago, but although his work was of the greatest possible geographical value, his narrative was singularly deficient in military information.

From the spur above the camp, a partial view of the Pass was obtained, and we could see several standards waving, and groups of men moving on the sky-line of the hills. A company of the Guides was sent to reconnoitre in the afternoon, and succeeded in reaching the foot of the ascent without difficulty. They were, however, then fired on, but without effect, and having gained their object the reconnaissance returned.

The Brigade intelligence officer, Lieutenant Cockerill, was able to make a rough sketch of the ground, and the position of the main defence of the enemy was determined. As the result of this information and from personal observation by Sir Robert Low and Brigadier-General Waterfield from the hills above the bivouac, the general plan of attack was formed. After dinner in the evening Brigadier-General Waterfield called all com-

manding officers to his tent, and there explained the part allotted to each next day.

The rain had ceased in the afternoon, and the men busied themselves till dark in drying and cleaning their arms. Awhile the clicking of magazine rifle bolts, and the snap of the Martini breech action sounding through the camp told of preparations for to-morrow's fight, and then all sunk into a sound and well-deserved sleep.

3rd April.—After a good meal the troops of the 2nd Brigade (to which No. 8 Mountain Battery, one squadron of the Guides Cavalry, and one company sappers were permanently attached), reinforced by two more mountain batteries, a second squadron of the Guides Cavalry, and two companies of Bengal Sappers and Miners, moved from Durgai, the advance commencing at 8 a.m. as ordered. The following was the order of march:—

- | | | |
|--------------------|---|---|
| Advanced
Guard. | { | 1. Guides Cavalry; two squadrons. |
| | { | 2. Two companies Guides Infantry. |
| | { | 3. Two Maxim guns; detachment Devonshire Regiment. |
| | { | 4. Remainder of Guides Infantry. |
| | | 5. Nos. 3 and 8 British (six guns each), and Derajat Native Mountain Battery (four guns). |
| | | 6. Nos. 1, 4, and 6 companies Bengal Sappers and Miners. |
| | | 7. 2nd Battalion King's Own Scottish Borderers. |
| | | 8. 1st Battalion Gordon Highlanders. |
| | | 9. 4th Sikh Infantry, which furnished a rear guard of one company. |

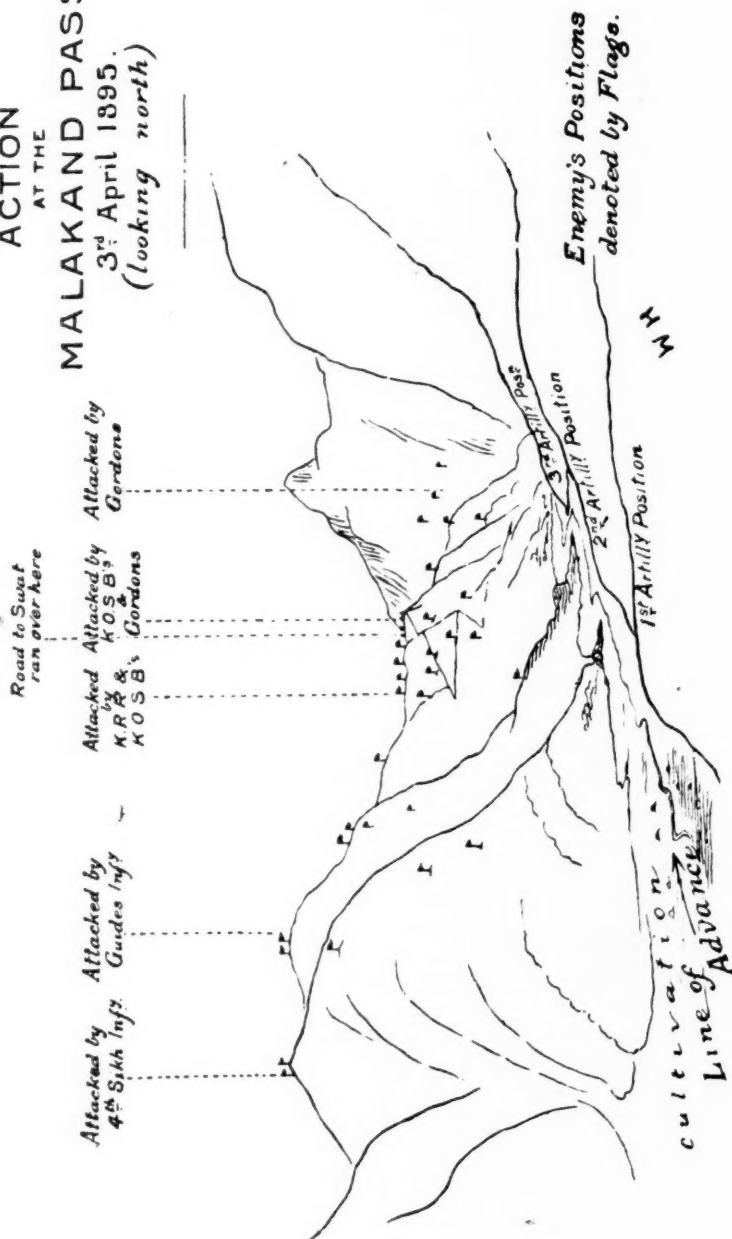
All baggage was left at Durgai, first reserve ammunition only accompanying corps. Every man carried his great coat and half ration cooked, in mess tins.

The line of advance was North-East, up a valley, about one mile broad at the mouth near Durgai. This valley in a distance of 4 miles narrowed to the mere breadth of a stony watercourse in which meandered a meagre stream taking rise in the precipitous mountains near the Pass. The dry bed of this watercourse, some 4 or 5 yards broad, formed the high road of the country, this being a well-frequented route carrying a considerable amount of trade. At the place where the watercourse, owing to the contraction of the valley, became a ravine, the path left it, and returning sharp to the left (*i.e.*, to the North), zigzagged up the steep hillside. This, however, was not known till the action was well advanced, for the pathway, such as it was, had been so blocked on the hillside by felled trees and bushes as to be scarcely visible.

Though stony, the valley, where level, was well cultivated and carried good crops, principally barley. The hills rising on either hand some two thousand feet were rocky, and in places precipitous, covered for the most part with a sparse growth of wild myrtle and thorny bushes.

The position of the enemy extended for about three-and-a-half miles along the hills to the west of the valley, across the head of the ravine,

**ACTION
AT THE
MALAKAND PASS
3rd April 1895.
(looking north)**



and for about half a mile to the east of it. The right rested on commanding summits about 2,000 feet above the valley, the centre crowned a more level crest line which dropped abruptly on the eastward by a projecting spur, into the ravine, 1,000 feet below. On the crest at the point of this spur, and forming a conspicuous mark, was a collection of rough stone huts. To the north and east of this spur on both sides of and across the head of the ravine may be termed the left of the enemy's position. This part of the position was not visible from any point down the valley below the projecting spur. The total length of the position may be estimated approximately at from three-and-a-half to four miles. This extent of ground was defended by sungars on all commanding points. On the crest of the hills, and down the steep and narrow spurs leading from the crest to the valley, were successive lines of sungars, five to ten sungars or so down each spur. Access to the hills above was only possible by these spurs, as the intervening hollows were broken and precipitous. The sungars were of various capacities: some were loop-holed for a dozen marksmen or more, others for a less number. Their positions were well adapted to the ground, they were almost invariably arranged for mutual flanking fire, the lower ones were commanded by fire from above, and the approaches to them from below were blocked by felled trees and bushes. The arrangement of this defensive position was, probably, one may say traditional. The Malakand Pass was reputed by the tribesmen impregnable, and reliable tradition, if not history, records that the army of a Mogul emperor of India, bent on entering Swat, was here defeated. From the systematic way the position was prepared for defence, and the appearance of many of the sungars, evidently not the work of yesterday, it may be inferred that the tribesmen of Swat were accustomed when danger threatened from the South to man the defences of the Malakand much in the way as they did in April, 1895.

The numbers of the enemy and their strength at any particular point are difficult to estimate, except approximately. The total strength has been estimated as high as 12,000, of which half or more were armed. After careful enquiries from those best able to judge, it would seem that on the extreme right of the enemy, attacked by the 4th Sikhs and Guides Infantry, were about 2,000 men, about half of whom were actively engaged; in the centre about 1,500 men, and the same number on the left. There were besides some one to two thousand more who retired before the action came to close quarters. This would give a total of some six to seven thousand men opposing the advance. No doubt a good many more had collected to see the fun, which, however, soon became too serious for mere spectators to take part in. About five thousand men, or by far the larger proportion, had firearms of sorts. There were some rifles, but not many, say 100 or so. The majority were armed with smooth-bore muzzle-loading guns of all patterns, firing ounce balls, slugs, mould shot, and even stone bullets. Swords were carried by most of those without, and by many with, firearms. The swords were of the well-known curved Eastern pattern, made as a rule of indifferent steel, though one or

two good weapons were taken. The large Afghan knife, so well known on the Khyber side, is not met with in Swat or Jandol, except as an exotic.

It was a beautiful morning, clear and fresh after the rain. A number of quail and partridge got up as we advanced, and their calls were heard on all sides. At 8.45 a.m., the first shots were fired by the enemy at the cavalry up the valley. The artillery advanced, and took up a position on a spur on the eastern side of the valley, and at 9.10 a.m. opened fire on groups of the enemy occupying sungars on the western side. The distances, however, were deceptive in the very clear atmosphere, and the range was found to be too great, being over 4,000 yards. So after a few shots, the general advance was continued at 10 a.m., the artillery moving along the foot of the hills on the eastern side, and the infantry up the centre of the valley.

The advance guard in the meantime was engaged in driving off small parties of the enemy from the low spurs higher up the valley, and behind them worked the sappers, clearing a line for the guns through the bushes and small fenced fields on their line of advance.

The Guides Infantry were now directed to advance up the steep hills to the west, their final objective being a prominent peak held by the enemy, and apparently the extreme right of their position. This peak was some 1,500 feet above the valley and dominated the lower ridge to its north, on which it was now evident the enemy were assembled in considerable strength. As the Guides commenced their climb it was seen that the enemy were in some strength on the left flank of the Guides' advance, and the 4th Sikhs were therefore despatched to strengthen them on the exposed flank, and acting with them to crown the heights above.

On the Guides being despatched to perform this duty, two companies of the King's Own Scottish Borderers went forward as advanced guard. At about half-past ten the guns came again into action on a spur similar to the first at a range of about 2,400 yards from the main position of the enemy. Fire was opened on the heights, which were being attacked by the Guides and the 4th Sikhs, and also against the main position. The range, however, was still too great to be effective, so the guns advanced to a low spur, which faced at a distance of 1,000 to 1,200 yards the strongest position of the enemy on the central ridge, and from this point once more opened fire, this time with marked effect. A few of the lower sungars were evacuated, and the enemy were unable to reinforce from the crest those held down the face of the hill. The two Maxim guns of the Devonshire detachment also took up position to the north of the guns, a few hundred yards nearer the enemy, and fired across the ravine. The 4th Sikhs and Guides had by this time completed rather more than half the ascent to their final objective, and taken several sungars, which made a decided impression on the enemy on that flank.

Under cover, therefore, of the artillery and Maxim fire, the King's Own Scottish Borderers and Gordon Highlanders advanced at noon to make a direct attack upon the centre of the position. The King's Own Scottish Borderers being on the left, and the Gordon Highlanders on their

right. The objective named was "the village," as the few huts on the crest of the ridge appeared from a distance to be.

The crest was about 1,000 feet above the little watercourse at the foot of the ascent. The approximate steepness of the lower half of the ascent up the spurs was about twenty degrees, of the upper half about thirty degrees, the intermediate ravines being quite precipitous in many places. For the greater part of the way it was necessary to climb as much with the hands as the feet, and to advance on a very narrow front, or even in single file, owing to the spurs being so steep and narrow. The leading parties could make no use of the rough path zig-zagging up the hill, now discovered for the first time, as it was blocked with bushes, trees, and rocks, and well commanded by fire from sungars throughout.

The King's Own Scottish Borderers attacked, therefore, by two spurs, with a portion of the regiment held in reserve. The Gordon Highlanders moving up the ravine to attack on their right came, on rounding the projecting spur, under fire from the enemy in sungars on both sides of the ravine, which at this point narrowed to the breadth of the rocky torrent bed, for the most part dry. The sides of the ravine here rose at a slope of about thirty degrees, and were in places precipitous. Two companies and the regimental Maxim gun were therefore detailed to co-operate with the King's Own Scottish Borderers in their attack on the village, while the remainder of the regiment pushed up the bed of the stream, sending a strong party to clear the enemy from the sungars on the eastern heights. This was effectually done and the column at the bottom was able to advance slowly up to the head of the valley, where it closed in an abrupt and precipitous ascent rising to the kotal or "col," the true pass it might be called, and the lowest point between the hills on either hand.

There was, however, no road or path of any sort over this neck, the regular route passing, as previously described, over the ridge near the village about a mile to the west of the kotal.

Meanwhile, the central attack, strengthened by the King's Royal Rifles from the 1st Brigade, acting between the Guides and the King's Own Scottish Borderers, pushed steadily up the hill covered by the fire of the guns. As the crest was neared, and the guns could no longer continue firing with safety, the energy of the defenders was renewed. Incited by their mullahs, or priests, the Swatis fought at close quarters with desperation and great bravery, firing at a few yards range, rolling down rocks, and charging the British troops sword in hand. At about 1.45, however, some six officers and twenty men, King's Own Scottish Borderers and Gordons mixed, gained a footing on the crest near the village, and beating off the last despairing attack of the few brave men who still disdained to fly, cleared the village, now in flames from the shells, and the fight was won. The enemy's dead lay thickest at this point, and among them were many mullahs. Almost simultaneously the remainder of the King's Own Scottish Borderers and the King's Royal Rifles gained the ridge to the west of the village, and the main body of the Gordon Highlanders very shortly after reached the crest at the

head of the ravine on the extreme east of the position. The Guides and the 4th Sikhs had won the summits they attacked about 1.15 p.m., and so, moving eastward along the ridge down towards the village, they co-operated with the other attacks in driving the enemy from the whole of his positions headlong into the Swat valley below.

Immediately the crest was reached, the officer commanding the King's Own Scottish Borderers rallied his men, and pushed on at once with three companies about three-quarters of a mile down the path on the western side, to a little patch of cultivation, which afterwards formed the bivouac of the 1st Brigade for the night.

The 2nd Brigade had previously been ordered to bivouac on the Pass, while the 1st Brigade passed through to the Swat valley, so the pursuit was taken up by the Bedfordshire Regiment and 37th Dogras of the 1st Brigade, who, following the Gordon Highlanders up the ravine, pushed over and down into the Swat valley, breaking utterly the last attempts at resistance by the defenders of the Malakand.

The sappers and miners had been working hard throughout the attack close in rear of the firing line, in clearing and improving the path, and so when the position was taken the guns were able to commence the ascent almost at once. The troops of the 3rd Brigade were concentrating near the path on the crest preparatory to bivouacking as previously directed, when the order was received about 4 p.m. to return to Durgai. As the only path was crowded with the transport of the 1st Brigade going up, the descent was tedious, and it was dusk before the bulk of the troops arrived at the bottom. Durgai was reached soon after 9 p.m., except in the case of the 4th Sikhs, who, having the longest way to go and being in rear of the column, did not arrive till after midnight, having thus been on the move almost continuously for over sixteen hours.

The casualties of the 2nd Brigade in this action were:—

Corps.	Killed.		Wounded.		Remarks.
	Officers.	Men.	Officers.	Men.	
K.O.S. Borderers ...	—	2	2	13	* Includes 2 Native Officers; also 1 British Officer not reported at the time.
Gordon Highlanders ...	—	3	3	9	
Guides Infantry ...	—	—	1	2	
4th Sikh Infantry ...	—	1	5*	6	
		6	11	30	Twenty-nine of the wounded were severely or dangerously wounded.
Total casualties—2nd Brigade			47		

The other casualties were:—King's Royal Rifles, four men killed, and four wounded; Bedfordshire Regiment, one man killed, one wounded; Guides Cavalry, one man wounded; Derajat Mountain Battery, one man wounded; total, five killed, and seven wounded.

No accurate computation could be made of the number of casualties inflicted on the enemy. From information afterwards obtained in the Swat valley, the inhabitants estimated the number of killed at about 500, and including those who died of wounds this seems probably approximately correct. In accordance with Pathan custom, every endeavour was made to

carry off the dead and wounded, and several men were killed while in the act of doing so. Many dead and wounded, however, were left on the ground, over forty bodies being found next day on and near the crest not far from the few huts we called the village, and this was only a small portion of the position, though perhaps that exposed to the heaviest fire. The killed were mostly men in the prime of life — peasantry from the Swat valley. Round their waists, or placed near their loop-holes in the sungars, were their frugal rations of flour or unleavened cakes, ready baked, sufficient to last for several days. Poorly clad as a rule in coarse white cotton garments, sandals of rope on feet, and girded with accoutrements archaic in their simplicity, they were manifestly no hireling soldiers, but patriots, however misguided, fighting for their country and religion.

Physically the Swatis are not a fine race, and have never held any great reputation for bravery. Rather low in stature, and plain-featured, they bear no resemblance to the tall, handsome Pathans of the Eusafzai, Khuttak, or Afridi clans, found in our Punjab regiments. The men are reputed to be ruled by their mullahs, and by their women; but whatever their reputation, we certainly have no cause to bear them ill-will. Accepting their defeat they subsequently assisted our troops with supplies, and labour, and on no occasion did they follow the cowardly Pathan tactics of cutting up unarmed stragglers, potting sentries, or firing into camp at night.

The fire discipline in the attack was without doubt excellent. It was a pleasure to see thus practically exemplified the result of the training of the past few years. Whenever it was possible for several men to fire together, volley firing alone was employed; and from the comparatively small amount of ammunition expended, it is evident how well the fire was under control.

A statement was made in one of the first unofficial telegraphic reports of the action that "the expenditure of ammunition was enormous." This statement was repeated in English papers, and even made the text of learned disquisitions. One journal, commenting thereon, took the trouble to point out that in attacking sungars large expenditure of ammunition was essential. As a matter of fact, the attacking infantry, owing to the steepness of the ground and the good cover afforded by the sungars, seldom had a good mark to fire at, and as they did not waste ammunition by firing at random, the expenditure of ammunition was remarkably small. It will be remembered that infantry fire was maintained for over four hours, for about two of which the attack was universal. The following table, compiled from official returns, is therefore interesting:—

Corps.	Men.	Rounds Fired.	Average per man.
K.O.S. Borderers	760	7,667	10·08
Gordon Highlanders	739	8,580	11·61
4th Sikh Infantry	527	1,607	3·04
Guides Infantry	649	2,226	3·43
Totals	2,675	20,080	7·5

The greatest average number of rounds fired by any one company was twenty per man, and this was several points ahead of the average in any other company.

The artillery expenditure of ammunition was given thus:--

Battery.	Ring Shell.	Shrapnel.	Average per gun.	Remarks.
No. 3 Mountain Battery ...	48	148	32.6	6 guns
No. 8 Mountain Battery ...	35	69	17.3	6 "
No. 2 Derajat ...	30	134	41.0	4 "
Totals ...	113	351	29.0	—
	464			

Although the artillery fire had very little effect, if any, in breaking down sungars, the man-killing effects of the shrapnel against the enemy on the crest was well marked, in spite of the small number of bullets in the 2.5-inch shell. Some shells also which, passing over the parapets, burst against the wall of rock forming the back of some of the sungars, effectively cleared them of their occupants.

The Maxim guns of the King's Own Scottish Borderers and Gordon Highlanders, fired 4,000 and 450 rounds respectively. The former gun was in action with the advance guard as well as in the final assault. Both guns were carried by hand up the hill with their regiments in the final attack, and proved most useful, especially in clearing out sungars on parallel spurs by flank fire at short range.

I am unable to give an accurate return of the number of rounds fired by the two Maxims of the Devonshire detachment, but as their total expenditure in three actions was only 4,015 rounds, it did not probably exceed 2,000 rounds at Malakand.

4th April.—Marched from Durgai back again to the Malakand Pass, leaving all camels and stores thereon at Durgai, under an escort of a wing of the Guides Infantry. On arriving at the foot of the Pass, the path was found so crowded with transport animals and Guides Cavalry, pressing on to join the 1st Brigade, that it was quite impossible for the troops of the 2nd Brigade to get up, except by climbing the face of the hill clear of the path, which we accordingly did, and left the mule transport of the Brigade carrying kits and rations, to follow whenever the road might be clear. As the Brigade transport could not begin the ascent till after nightfall, and did not arrive till early next day, most of the Brigade spent rather a hungry night, and, as it got very chilly after sunset, a cold one too. Any inconvenience, however, which though felt, was not expressed, vanished with the rising sun. Leaving one-and-a-half battalions to hold the crest of the Pass, the rest of the Brigade bivouacked in the patch of cultivation about half a mile on the north side of the Pass, occupied by the 1st Brigade the previous night, and which subsequently became the camp of Malakand on the line of communications.

Between the crest of the Pass and this camp was a thick grove of wild olive trees, some 10 acres or so in extent, and the whole almost of

this grove was a cemetery. In the rude enclosures round the chiefest graves, and throughout the wood, were found many bodies of yesterday's slain, left there apparently when being carried off by friends too hard pressed to fulfil their pious work. Malakand evidently bore, as tradition said, the reputation of holy ground, in which it was a privilege to be laid, for there were no villages within three or four miles. The few huts on the crest, which we had called the village, had been occupied only by mullahs and holy men.

Above our bivouac was a lofty rock, crowned by the remains of an ancient fort, reputed Buddhist, which overlooked the path leading to and the valley of Swat itself. From this commanding point a good bird's-eye view was obtained of the action near Khar, fought by the 1st Brigade this afternoon.

The signs of a vanished civilisation, called for want of a better term, Buddhist, are writ plain in the rocks of Malakand. In the course of the action of the 3rd (a fact mentioned in all reports of the action) parts of an old path were come upon, which on being followed up, proved to be a roadway some 10 feet broad, laid out with very considerable engineering skill at a uniform gradient of about one in thirteen. It followed the hillside to the west of the valley from near Durgai, reached the crest near the existing pathway, and descended to the Swat valley by a similar easy gradient along the side of the mountain. In places quarried out of the hard rock, in places supported by retaining walls, its antiquity was vindicated by the old trees growing from out of quarried surfaces. So good a road was it that three days' work, mainly in clearing it of trees and brushwood, sufficed to make it a good camel road, and till nearly the end of the expedition this was the main line of communication in rear of our force. Of the existence of such a road nothing whatever was apparently known, either by rumour or tradition, its use had been abandoned manifestly for many years, presumably from the time of the first Mussulman wars of invasion, when the old Buddhist and Hindu civilisation was swept away by the rising tide of barbarians.

To cut themselves off from their neighbours and to seek safety in seclusion is always the policy of the half-civilised, and so effectually had this policy been carried out that, in spite of the fact that the Malakand has always been a main trade route, all knowledge of the former highway seemed to have disappeared.¹

But the Malakand Pass, with or without a road, must always be an open doorway to the valley of Swat, and no wonder it was jealously guarded. Right away from the Eusafzai plain up to the southern foot of the Pass is practically a dead level, and with one rise of 1,000 feet the mountain chain is crossed. Looking from the hills on the northern side of Swat, across the valley towards the Malakand, the low elevation of the Pass compared to the hills on either side of it is markedly apparent. It seems a veritable gap in the line of hills. The range can, it is true, be

¹ The *Observer* in a review of Captain Younghusband's book on the campaign states that in a work written expressly for the India Office by the distinguished Orientalist, Major Rafferty, the existence of this road was distinctly pointed out.

crossed elsewhere by the Shkakot and Morah Passes and others, but none are so designed by Nature for a highway of nations as the Malakand.

Over the Pass now runs, in addition to its ancient road, again restored to usefulness, a good metalled cart-road, linking Swat once more with the plains of the Punjab.

5th April.—Leaving the Gordon Highlanders in bivouac, the remainder of the Brigade moved down to the neighbourhood of Khar, and joined the bivouac of the 1st Brigade. The infantry of the Brigade were now disposed thus: Guides Infantry, half-battalion at Durgai, half-battalion at the crest of the Pass; Gordon Highlanders, half a mile north of the Pass; King's Own Scottish Borderers, 4th Sikhs, and attached cavalry and artillery at Khar. Most of the Brigade transport was still delayed at the Pass. An enquiry as to how the troops of the 2nd Brigade at Khar were off for rations, kits, and transport, showed the following result:—

Corps.	Rations.	Kits.	Transport.
K.O.S. Borderers ...	half day ...	none ...	For tools, pakkals, and ammunition only.
4th Sikhs ...	none ...	all ...	For above, and for three days' rations.
8th Mountain Battery	one day ...	a few ...	For fighting purposes and for one day's rations.
Derajat Mountain Batt.	"	ditto ...	Ditto.
1st Sqdrn. Guides Cav.	{ none and no grain for horses }	complete ...	Complete.

6th April.—The troops under Brigadier-General Waterfield (two squadrons Guides Cavalry, No. 8 Mountain Battery, Derajat Mountain Battery, King's Own Scottish Borderers, 15th Sikhs, and 4th Sikh Infantry) marched from Khar up the Swat valley about 8 miles to Thana, as a reconnaissance in force. The Guides Cavalry reconnoitring the previous day, had been fired upon from this village, one of the largest in the valley, and the object of the reconnaissance was to test the disposition of the inhabitants and fight them if they so wished. However, they tendered submission, and the troops fell back some 3 miles to Aladand, where those of the 2nd Brigade bivouacked, while one squadron Guides Cavalry, the Derajat Mountain Battery, and 15th Sikhs rejoined the 1st Brigade at Khar. No. 4 Company Sappers and Miners joined us at Aladand, and while they were reconnoitring the river this afternoon for fords, and a bridge site, were fired on from near Chakdara. Parties of the enemy were observed also on the hills, and along the north side the river, about 3 miles distant from Aladand. There appeared also to be a gathering at Thana. The bivouac was formed therefore with a view to defence, and a small ditch and bank made round it, but the night passed off quietly.

7th April.—No. 4 Company Sappers and Miners escorted by one company 4th Sikhs, and one company King's Own Scottish Borderers, went down to the river, which is about a mile from Aladand, at 7 a.m.,

to try and arrange means of crossing. They were fired on from the heights and villages across the river which were now seen to be crowded with men bearing numerous flags. The remainder of the troops in bivouac, except the necessary camp guards, were therefore despatched to the river to reply to the fire. No. 8 Mountain Battery, firing at a range of about 1,500 yards, assisted by two Maxim guns, and a company of the 4th Sikhs, extended along the river bank at 900 yards range, kept down the enemy's fire very considerably. The sappers, meanwhile, were engaged, under cover of some stacks of straw, in making up rafts of inflated skins, by means of which it seemed probable part of the force would have to cross. It was known that the river was in places fordable to a certain extent, as it had been crossed, though with some difficulty, by a mounted officer, higher up the stream, the previous day. From the villagers, too, it was known that a ford lay between Aladand and Chakdara, which was strongly occupied by the enemy, but there was some difficulty in getting any man to come forward and show where the ford lay. It seemed probable, therefore, that a crossing would have to be made at some narrow and deeper part not directly commanded by the fire of the enemy.

About 9 o'clock orders were received from the Chief of the Staff at Khar to the following effect:—

1. Reconnoitre up the valley toward Uch, with the 11th, or a squadron of 11th Bengal Lancers, and two squadrons Guides at your disposal, making any dispositions to support them with the other arms that you may consider advisable.

Note that 1st Brigade squadron of Guides should be spared fatigue, and returned to its Brigade early.

2. Find and stake out the best ford for the ultimate advance in Uch.
3. Send over and dismantle Ramora fort, bringing all available wood down for the bridge.

The 11th Bengal Lancers, one squadron Guides, and the 15th Sikhs were added to the force at Aladand to carry out the above programme.

The situation then between half-past nine and ten a.m. was as follows:—

On the north side the river, opposing the passage, were some 2,000 of the enemy, disposed thus:—

Enemy's right (West).—About 400 men posted in sungars on, and near the low hills about 500 feet above the river, and on an isolated knoll, about 100 feet high at the foot of the hills, close to and commanding the former ferry. These men were largely armed with rifles, and were probably part of the 800 men of Umra Khan's army who, under command of Mahomed Shah Khan, Umra Khan's brother, had been sent to stir up and support the villagers in opposing us. Mahomed Shah Khan himself commanded at this action.

The enemy's centre.—About 500 men occupied the villages of Chakdara, about 600 yards east of the isolated knoll, and Dulbar, some

500 yards to the east again of Chakdara. The villages were composed of rough stone houses, with flat roofs of earth over timber. Chakdara village was about 200 yards square, surrounded by trees, Dulbar rather smaller. In front of these two villages, between them and the river, was a stretch of boggy ground about 200 yards in breadth.

The enemy's left (East)—Consisted of some 300 men between Dulbar and Ramora, and some 800 or 1,000 men collected near Ramora fort. These latter, however, were scarcely engaged at all, as they fled when the river was crossed elsewhere.

Close in front of the enemy's position ran the Swat river, flowing from east to west, rapid, and known to be almost, if not quite, unfordable by infantry, except at fords. The exact depth of the river was not known. Its breadth under the isolated knoll was some 50 yards, the narrowest part. It was ascertained about this time that the regular ford crossed the river somewhere near Chakdara, but its exact locality was still unknown.

General Waterfield had under his orders the following force on the spot or close at hand:—

No. 8 Mountain Battery, six guns.

Derajat Mountain Battery, four guns.

11th Bengal Lancers.

Two squadrons Guides Cavalry.

King's Own Scottish Borderers, with Maxim gun.

15th Sikhs.

4th Sikh Infantry.

No. 4 Company Sappers and Miners.

Two Maxim guns, detachment Devonshire Regiment.

To carry out the instructions of the chief staff officer, the following orders were issued by General Waterfield at 9.50 a.m.:—Half the 11th Bengal Lancers, Derajat Mountain Battery, and King's Own Scottish Borderers to go up the river, cross near Ramora, and carry out Order 3, given above. The cavalry having passed near Ramora, to move down the far bank of the river towards Chakdara. The officer commanding 11th Bengal Lancers having, however, subsequently reported that a good ford existed to the East of Chakdara, not so far up as previously intended, permission was given to cross there. The remainder of the 11th Bengal Lancers, Guides Cavalry, 15th Sikhs, and 4th Sikh Infantry, supported by the fire of No. 8 Mountain Battery, and the two Maxim guns, to ford the river opposite Chakdara and break the enemy's centre.

At about 10.30 the troops detailed began to move up stream, to carry out this plan. The ground was very swampy and cut up with water-courses, which made free movement difficult. The enemy meanwhile continued a sustained rifle fire from the hills and villages, whereby several men were hit at a range of 900 to 1,000 yards. No. 8 Mountain Battery, the three Maxims, and a company of the 4th Sikhs, on the river bank, replied steadily whenever a good chance of hitting presented itself.

At 11 a.m., two squadrons of the 11th Bengal Lancers, covered by

the fire of the King's Own Scottish Borderers, entered the river east of Chakdara, under a heavy though ineffectual fire from the villages. When the enemy saw that the cavalry were actually crossing, they were seized with a regular panic, and abandoning their very strong positions in the hills and villages, fled for the most part up the open valley towards Uch, Mahomed Shah Khan and his escort of some fifty horsemen leading the way. Others ran from the open into the villages and concealed themselves there. The remainder of the 11th Bengal Lancers and a squadron of the Guides crossed opposite to Chakdara, and joined in the pursuit of the flying foe. An immediate advance of the infantry was ordered, and all being ready for such a move, though such speedy success was scarcely anticipated, the 15th Sikhs and the 4th Sikhs soon followed the cavalry across the river. One man of the 4th Sikhs was shot dead from the hills and one drowned in this crossing. The water was about three-and-a-half feet deep, very cold and rapid, with a current of about 4 miles an hour, the bottom firm of water-worn boulders. Five separate channels were crossed, of which two were about 30 yards broad, the others of less account.

The 11th Bengal Lancers, who are an exceptionally well-horsed regiment, crossed at a rapid pace over some 200 yards of swampy, intersected ground, beyond the river, reached the open plain and charged the fugitives with great effect, continuing the pursuit up to and beyond Uch, for about 6 or 7 miles.

About 100 of the enemy were killed or wounded in this charge and pursuit. The plain was covered with high corn crops, good going, but rather rough. Some of Mahomed Shah Khan's mounted body guard were killed, while others abandoned their horses and took refuge in the hills. Mahomed Shah Khan himself, and a few followers, hotly pursued as far as the Katgola Pass, never drew rein till they got safe home to Jandol, some 40 miles from the scene of action. That night, as we afterwards learned from Lieutenant Fowler, a prisoner with Umra Khan, there was much excitement in Burwa, at the north end of the Jandol valley, much talk of cavalry, and a general exodus of the people next day.

The 15th Sikhs occupied Chakdara, and the 4th Sikhs Dulbar. There was some opposition to the 4th Sikhs at Dulbar, and 200 armed men, some wounded, were taken prisoners in this village. Several had tried to hide themselves in cattle stalls, corn-bins, straw stacks, and like places; but the 4th Sikhs, too old soldiers to be deceived by such artifices, soon collected a large number of prisoners, arms, and cattle. A large number of arms of all sorts were found in Chakdara besides some cattle, grain, and flour. The King's Own Scottish Borderers and the Derajat Mountain Battery having, about 11.30 a.m., forded the river rather higher up, with very considerable difficulty, occupied Ramora fort, which was evacuated by the enemy as they approached. It was, however, found quite impossible to destroy or even damage the fort with the gun-cotton available, as the walls were some 6 to 10 feet thick, built like all forts in this country from Swat to Chitral, of large stones

cemented with clay, strengthened and bound together throughout their structure by a crib work of massive logs. The fort was subsequently attacked more systematically, but a great deal of work was required to destroy it without damaging the wood it contained. As the villagers of Dulbar and Chakdara had actively opposed us, orders were given for all the supplies, arms, and cattle found to be confiscated, and for such wood as was required for the bridge to be taken from the roofs of houses. About a quarter of each village was therefore partially demolished.

The cattle were handed over to the civil officer, for Government service, the supplies to the commissariat, and the arms were distributed among the troops engaged, and any others who cared to have them. A large number of muskets, jezails, and swords, interesting, but of no great value, were broken up two days after, as they were not wanted by anyone. Indeed, those of the force destined to advance were obliged to limit themselves to few or none of these trophies, as there were no means of carrying them on, or sending them back to India. At 3 p.m., the cavalry returned from their pursuit, nearly every lance red with blood, and recrossed the river.

The two Sikh regiments remained in occupation of the villages, which were placed in a state of defence, the sappers bivouacked on an island in the river, where they had been staking out the ford, and the rest of the force returned to their bivouacs of the morning.

The troops across the river were unmolested during the night, but a company of the 4th Sikh Infantry, escorting kits and rations of the regiment from Aladand to Chakdara about 9 p.m., were fired at by a few men near the river, without effect.

The casualties to the enemy could not be accurately ascertained. That they suffered heavily in the cavalry pursuit and charge was manifest, but though many bodies were left on the ground, many more and the wounded were carried away in the night. The villagers said that a good number were killed in the sungars on the hills by artillery fire. Certainly the fire of the mountain guns was, as always, extremely accurate, and probably so shook the defenders' morale as to cause them to fly in panic from naturally strong positions on to ground most favourable for the action of the cavalry they dreaded. At a rough estimate the total casualties probably did not exceed 200 or so, of which, perhaps, a third were killed, mostly by the cavalry.

Our casualties were as follows:—

Corps.	Killed.	W'nded.	Remarks.
K.O.S. Borderers	—	1	—
11th Bengal Lancers	1	6	also 5 horses killed, 8 wounded
15th Sikhs	—	1	—
4th Sikh Infantry	2*	—	*Includes one drowned.
No. 4 Co. Sappers and Miners	—	1	—
Totals	3	9	—

8th April.—The troops at Aladand, with the Gordon Highlanders and Guides Infantry, who had rejoined the Brigade the previous evening, moved across the river to Chakdara. The river had risen in the past twenty-four hours, and the crossing with all baggage and transport over a narrow and somewhat dangerous ford was a work of time. As on the previous day, each section of fours linked arms firmly together, and double distance at least was left between each section of fours to minimise the deepening of the water caused by partial blocking of the stream.

The first regiment left Aladand at 7 a.m., and all were not in bivouac at Chakdara till 3 p.m., though the distance as the crow flies was about 2 miles only. The 11th Bengal Lancers and a squadron of the Guides reconnoitred up to the Katgola and Laram Passes respectively during the day, while the Guides Infantry and the Derajat Mountain Battery, as soon as they had crossed the river, pushed on to the Katgola Pass, and bivouacked there. There was no opposition. The inhabitants expressed themselves friendly, and, while acknowledging that they had opposed us at the Swat river, urged that they had been compelled to do so by Umra Khan's men. As this seemed undoubtedly the case, they were unmolested, and the confidence placed in them was never abused.

9th April.—The 4th Sikh Infantry left Chakdara at 12 to join the Guides at Katgola, and together with them pushed on to Shamshi Khan, about 15 miles from Chakdara in the Talash valley.

All the available cavalry reconnoitred to the Panjkora river. The rest of the Brigade remained in bivouac at Chakdara.

10th April.—The troops of the 2nd Brigade at Chakdara marched over the Katgola Pass to Gambat through Uch, about 16 miles, and bivouacked in a fine grove of wild olive trees. The Katgola Pass was found to present no appreciable difficulty. A broad open valley led up gradually to a low broad saddle between hills of no great steepness, and descended equally gradually to another open valley sloping to the west. The path was in very fair order, but narrow, and occasionally interrupted by small deep ravines; and as all animals had to go in single file, the rear guard following the transport did not get in till 8.30 p.m., the first regiment having started at 8 a.m.

As a practical example of a "time and distance" problem, the following particulars may be of interest:—

Troops:—

K.O.S. Borderers

1 Company Sappers

2 Companies 23rd Pioneers

No. 8 Mountain Battery

Gordon Highlanders

British and Native Field Hospitals

Head of Column left
Chakdara 8 a.m., arrived
at Gambat 2.30 p.m.

Transport and sup-
ply including rations
for men and animals
for 20 days.

4,150 mules of Brigade
59 camels of Brigade
220 camels Divisional Head
Quarters.

Last of Transport
left 10 a.m., and
arrived at Gambat at
6.30 p.m.

The above force took, therefore, two hours to file off on starting, this was about the least time possible. The troops were about six-and-a-half hours on the journey, but this included halts for improving the road. The transport was ten-and-a-half hours on the road.

The Derajat Mountain Battery, 4th Sikhs, and Guides Infantry, reached Sado, on the Panjkora, and joined the cavalry.

The Guides Cavalry, fording the Panjkora, though with considerable difficulty, not devoid of danger, owing to the depth and rapidity of the stream, reconnoitred into Bajour, and were fired on near Kotkai.

11th April.—Marched down the valley to the Panjkora river by the Shigukhas defile, then along and up the river by a rough and narrow path which in places overhung the torrent below, and required much labour from the sappers and pioneers to make it fit for the baggage animals. It was 9 in the evening before the rear guard reached Sado, some ten miles from Gambat, the transport having been fired on about 7 o'clock from the west side of the river near the hamlet of Zulm Baba while passing along the exposed and difficult path, and thereby further delayed. Some confusion occurred and loads were thrown, but there were no casualties except one mule wounded, and the rear guard was sufficient to afford all the protection possible. At night some shots were fired from across the river towards the Brigade bivouac, but the range was practically a safe one.

12th April.—The signallers of the 2nd Brigade, going out to establish connection with the 3rd Brigade in rear, were fired on from across the river, near Zulm Baba. A company of the 4th Sikhs, being sent out to support them, engaged the enemy across the river for some hours at about 300 to 500 yards range. A good deal of firing took place before the enemy, of whom there were some 200 men, evacuated the little village. They were seen to lose many, without loss on our side, as the 4th Sikhs company fired from perfect cover.

The sappers and pioneers were engaged all day in making a raft bridge, one mile below Sado, where the river narrowed to about 60 yards and was well commanded from our bank. The five raft piers were made of heavy logs, four balks to a pier. The logs were found stranded all along the river, for a considerable timber trade is carried on down the Panjkora, between the countries above Sado, and Abazai on the Peshawur border. The superstructure was composed of timbers, boards, and doors, taken mainly from the fort at Sado, and carried down by large fatigue parties of troops to the bridge site. The bridge having been reported fit to bear men by the evening, the Guides Infantry, under orders from divisional headquarters, crossed just before sunset, and bivouacked for the night on a spit of sandy ground on the far bank, close to, and covering the end of the bridge.

As the Guides left the bivouac of the Brigade, the pipers of the British regiments marched at their head, while the men lined the path cheering. The demonstration was as spontaneous as it was unusual. It was felt, possibly, that the pause in the advance due to the swollen and un-

fordable river, was now at an end, and the country of Umra Khan himself was being invaded at last. Perhaps it may be regarded as a prophetic portent of the glory to be won next day by Colonel Battye and his Guides.

13th April.—In accordance with orders from divisional headquarters, issued the previous day, directing them "to burn all villages within reach, to turn enemy out of all positions from which firing issued to-day and yesterday," the Guides Infantry, five companies strong, left their bivouac at the bridge head at dawn, and began the work assigned to them by firing the hamlets on the low hills north and north-west of their bivouac. One company was left at Sado in charge of the regimental kits, rations, and transport, another company also on the left bank, which crossed the river later, and one company in the bivouac at the bridge head.

The five companies then crossed the Ushiri¹ river, about 30 yards wide and knee deep, and worked up the hills to the south of that stream so as to get at the villages situated behind the ridge which rises some 1,000 feet from the western side of the Panjkora river.

While these operations were going on, Lieutenant Edwardes, 2nd Bombay Grenadiers, who had been taken prisoner at Reshun, in Chitral, was sent in by Umra Khan, having been escorted from Mundah by a circuitous route during the night. As Umra Khan seemed also disposed to treat, hostilities appeared at an end. But it was not to be so yet. A message by the heliograph was received from Colonel Battye, commanding the Guides, reporting that two large columns of the enemy were seen advancing towards him, and a reply was sent by the same method, directing him to retire on the river to his rear, where his retreat would be covered by the 2nd Brigade. During the previous night the raft bridge had been seriously damaged by floating logs coming down the stream, which was still rising. It was just crossable early in the morning, but very shortly after broke up entirely. The 2nd Brigade call and fall in was sounded at 1 o'clock, and in five minutes the first battalion, the 4th Sikhs, was on the move. In ten minutes the whole Brigade was filing off from the bivouac westward, towards the Panjkora river. It was about two miles distant, and the Brigade had not long been in position, commanding the face of the hills on the opposite side of the river, when the Guides Infantry were seen coming back over the crest, retiring by parallel spur down towards the river, hotly pressed by the enemy.

Two-and-a-quarter companies, who had previously been thrown out in front of the supporting body, burning villages in the valley the far side of the hill, had actually reached the foot of the hill near the river bank, and they moved up along the river, eventually re-ascending the hill to support the companies who were engaged with the enemy.

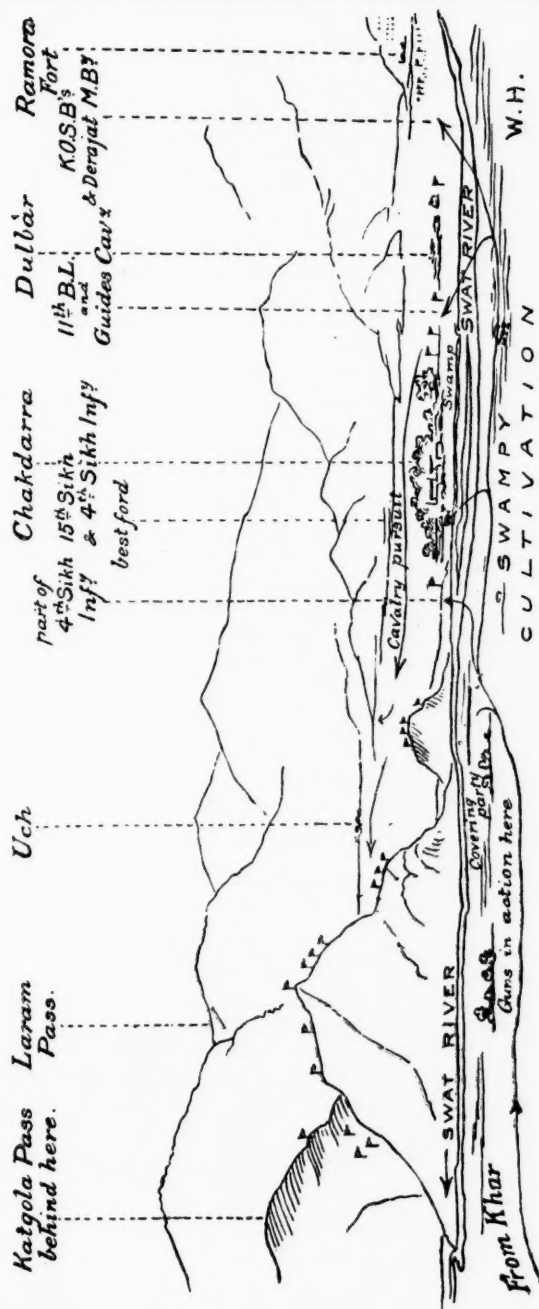
¹ So called in the official map then in use. It subsequently appeared that this stream bore no regular name, but if named at all might be called the Bajour or Jandol river.

As the enemy showed on the sky line of the opposite hill, No. 8 Mountain Battery having previously got the range, about 2,000 yards, opened fire, and checked them considerably. Covered, however, to a great extent by the folds of the ground, the enemy pushed on determinedly, pressing the Guides hard. Half-way down the slope they came under the Maxim gun and infantry fire from the troops extended along the eastern bank, at a range from 1,000 to 800 yards, and the movement of the mass of the enemy down the face of the hill was checked. Several parties of brave men, however, continued to follow the Guides at very close quarters, skirmishing skilfully among the boulders and scrub. More worked round the north face of the hill towards the right flank of the retiring Guides, where they not only threatened the line of retreat but were also to a great extent secure from the fire of the covering troops.

Retiring and firing with the greatest steadiness, in a manner which called forth universal approbation from the numerous spectators of this fine military spectacle, the Guides reached at length the foot of the spur, where, in the angle between the Panjkora and Ushiri rivers, was a level piece of cultivated ground, some 200 yards in breadth. At this moment Colonel Battye, who was, as always, last in retirement, as he was first in advance, fell shot through the body. The Afridi company of the regiment, who had already retired a short distance across the level, at once turned, charged the enemy, fixing bayonets as they ran, and not only recovered the colonel's body, but also drove the enemy back some way up the hill again. In the confusion caused by this gallant counter-stroke, the enemy exposed themselves also to the steady volleys of the King's Own Scottish Borderers and Gordon Highlanders, extended along the river bank, at a range of 500 yards and under, and the Maxim guns also opened a hot fire. The effect of this fire was very apparent; men were seen to fall by scores, while the banners on the crest, tossing wildly for a space as the standard bearers ran, were seen one by one to waver and fall. The Guides continued their retirement across the level fields and the Ushiri river, and from this point they were freed from close pursuit, as, though many tried, none of the enemy from the hills succeeded in crossing the Ushiri under the volley fire in flank of the troops in position on the left bank of the Panjkora.

But in addition to the force attacking the Guides on the hill, who were some 1,500 strong and by far the boldest in coming on, a compact body of men, estimated at 2,000, were moving down the valley by Kotkai, and pressing on so as to cut the Guides off from their bivouac. In this endeavour they were checked by the two companies left in the bivouac, who moved out and occupied the hill commanding the valley to the west, and also by the fire of the mountain guns. It was not till the Guides had reached their entrenchment at the bridge head about 5.30 p.m., that this force, passing behind the low hills to the north, occupied a ridge overlooking the Guides' entrenchment, at about 800 yards range, and opened fire with Martini-Henry rifles on them and on the troops covering the entrenchment, from the

PASSAGE OF THE SWAT RIVER.
7th April 1895.
Positions of enemy denoted by flags.
(looking north)



far side the river. A few men on the south side the river, including Dooli bearers, were hit by this fire, which continued till it became dark, about half-past six. A company of the 4th Sikhs and the Devonshire detachment Maxims, under Captain Peebles, crossed the river on rafts and joined the Guides, while half a battalion of the Gordon Highlanders, the Derajat Mountain Battery, and remaining Maxims covered the entrenchment from the high southern bank.

The position held by the Guides was situated on a level spit of sand and shingle at the edge of the river. It consisted of a rough parapet some 4 feet high, built of boulder stones and shingle and of a rough lunette trace. It was some 150 yards long with the flanks resting on the river, which also closed the gorge. In front the ground was level and open for some 200 yards, then, from a swampy hollow at its base, the ground rose about 300 feet to the first hill, the crest of which was distant about 800 yards from the entrenchment. Beyond this first ridge the ground fell into hollows and rose thence by successive higher hills to the mass of mountains on the north. The great disadvantages of the position was that it was commanded by the ridge at 800 yards range. From this elevation, the whole interior of the entrenchment was clearly visible, and the parapet served only to give cover to those close behind it. There were no wire or artificial obstacles available, nor were there any trees or brushwood on the adjacent ground to make abattis from. An intermittent fire was kept up by the enemy from a distance, varied by occasional attacks on the entrenchment, made by three or four men at a time, who, creeping along the ground, fired or attempted to charge at very close quarters. There were three bodies next morning lying within a few yards of the rough parapet. The Derajat Mountain Battery fired six star shells at intervals, the first of which set fire to some grass near the enemy's position.

The enemy, though, as was afterwards ascertained, intending a general rush on the entrenchment, were balked by the strange and unexpected illumination of the star shells. When the moon rose, about eleven o'clock, the attacks slackened, and between midnight and cock-crow the mass of the enemy cleared away, so that when day broke there were only a few remaining on the ridge overlooking the Guides' bivouac. But the fire of these, armed with Martini-Henry rifles, was all too deadly—a man of the Maxim gun detachment of the Devonshire fell with his shin bone shattered, and at sunrise on Easter Day Captain Peebles, commanding the detachment, while standing with other officers, was shot through the body. His wound was from the first known to be mortal, but he was able to converse with a few friends during the day, and meeting his end with the calmness and fortitude of a soldier and a gentleman, he passed away before the next dawn broke. It is not for me to add aught to that praise of his soldierly qualities, so publicly accorded by all his commanders; suffice it to say that none could know him without liking the man and honouring the soldier.

Brigadier-General Waterfield, seeing the catastrophe from the river bank opposite the entrenchment, and seeing also how few of the enemy there actually were, signalled across for the hill to be attacked and cleared. This was done at once. Before the Guides reached the foot of the ascent, the enemy fled at speed, and, screened by the hills, were no more seen. The Guides occupied the hill commanding the bivouac, and afterwards advanced to ridges looking westward over the valley of Bajour. Not a man was in sight, the host of yesterday had melted away.

The casualties in the action of the 13th up to the morning of the 14th inclusive were:—

Corps.	Killed.		Wounded.		Followers Wounded.
	Officers.	Men.	Officers.	Men.	
Guides Infantry ...	1	3	—	9	2
Detachment Devon Regt.	1	—	—	1	—
K.O.S. Borderers ...	—	—	—	1	—
Gordon Highlanders ...	—	—	—	2	—
4th Sikh Infantry ...	—	—	—	1	—
R. Irish Fusiliers ...	—	—	—	1 Signaller	—
35 Native Field Hospital	—	—	—	—	3
Total ...	2	3	—	15	5
	5			20	

The enemy were, from subsequent information received, from themselves, believed to have lost about 500 men killed and wounded.

Their total strength, including a body of 2,000 or 3,000 who kept, as it were, in reserve, and who did not come into action, at any rate, during the daylight, was probably over 5,000 men. It was a mixed gathering of tribesmen from Bajour, Utman Khels, and a contingent from the Kunar valley, subjects of the Amir of Kabul. They were on the whole better armed and better shots than had hitherto opposed us. The fire from the hills overlooking the Guides' bivouac was almost entirely from Martini-Henry rifles, and was very well aimed. There was an attempt at volley firing by words of command against the Guides in the retirement, and some bodies of men seemed to move by sound of bugle.

The following statement of expenditure of ammunition on 13th and 14th is interesting:—

Corps.	Men.	Rounds.	Average.
K.O.S. Borderers ...	687	9,465	13.77
Gordon Highlanders ...	700	10,422	14.88
4th Sikh Infantry ...	513	4,792	9.34
Guides Infantry ...	632	24,560	38.86
25th Punjab Infantry ...	10	48	4.80
Totals...	2,542	49,287	19.38

This gives a percentage of about 100 rounds of rifle fire, plus shell fire, not recorded, to every man hit.

Throughout the 14th, six companies of the 4th Sikhs crossed the river and joined the Guides Infantry, with kits and rations. Two, and afterwards three, small skin rafts only were available, and the operation took twelve hours. The stream was about 60 yards wide, with a current of some four-and-a-half miles an hour, increasing towards the evening. Each raft was made of ten inflated bullock skins, with a superstructure of light wood, and conveyed as a rule four native soldiers with arms and equipment, and two boatmen, who guided the raft with oars. These rafts were very buoyant and not as crank as they looked. It was necessary, however, to sit very still and keep one's legs out of the way, the nearest approximation to an Eastern squat being the only safe method. Owing to the swiftness of the stream they were cast off some 100 yards at first, and later in the day, as much as 200 yards above the point of landing on the far side, to which they were guided with great judgment and skill by the native boatmen.

15th April.—A few men and stores crossed by the rafts to join the 4th Sikhs and Guides till 11 a.m., when, owing to the heavy rain of the past night, the river rose so as to become dangerous. One raft, crossing from the right to the left bank, was upset in mid-stream by coming into contact with a floating pier of logs, the only remains of the raft bridge. The occupants were two men of the Devonshire Maxim gun detachment, and a man of the 4th Sikhs, and two boatmen; all were thrown into the water, but one boatman succeeded in reaching the bank, while one man of the Devonshire regaining his position on the raft, was carried rapidly down the river, then running like a mill stream. Brigadier-General Gatacre, with whom I happened to be at the time, near the ferry, perceived in a moment the chance, and it seemed but a very faint one, of rescuing the man at the new suspension bridge site near Zulm Baba, some 2 miles down stream. The raft was already in broken water, and being carried down headlong. By galloping at full speed on a villainously bad road, somewhat aided by the course of the river here making a slight detour, General Gatacre did get to the place just in time. Major Aylmer, busy at the bridge, was equally prompt in action, and plucked the man in mid-stream from the raft, which thereafter broke up on the rocks below.

After this accident the ferrying was stopped. The King's Own Scottish Borderers were all ready to cross but the crossing was manifestly too dangerous. The boatmen, with great courage, offered to go on working if necessary, saying, however, at the same time, that the risk was great. It had poured with rain all the previous night, and it began again about 1 o'clock in the afternoon. The bivouacs were soon a sodden swamp, and against the downpour, which continued all the afternoon and night, the waterproof sheet shelters gave but slight protection. The Panjkora rose to a torrent.

16th April.—The rapid rise of the river threatening to carry away the suspension bridge, in course of construction, and the rain still continuing, orders were given for the 4th Sikhs and Guides on the north

bank to evacuate their position, and march round to the suspension bridge to cross while yet there was time. As they had no transport, such ammunition and kits as could not possibly be carried were to be packed or buried near the river, at the entrenchment. The order was communicated by flag signalling from the King's Own Scottish Borderers' bivouac at the south side the river, just opposite the entrenchment. Owing to the rain and mist, it took some time to call up the signallers on the far side, and while doing so I had ample opportunity of watching and listening to the men of the Borderers in their bivouac.

To say their circumstances were comfortless hardly expresses the case. The bivouac site, the only available ground, was bog or steep and rocky hillside. The men were drenched. It was breakfast-time, but the fires of wet wood could do little but smoke the tea. Worse than all for a soldier, the advance seemed indefinitely checked, and the general look-out was depressing in the extreme. If anything could excuse a good grumble surely it might be expected now. But as the men talked together, I heard in the course of an hour no word of complaint, nor even an expression which might imply that any hardship was being endured. This cheerful and soldierly bearing was by no means confined to one corps, it was universal throughout all ranks of British and native troops; the latter, indeed, across the river were even worse off, but this instance is one which came more prominently under my personal notice.

Happily, about 9 a.m., the rain ceased, and the river not having risen as much as was expected in the night, the order for withdrawal to the south side the river was cancelled soon after issue. The suspension bridge made good progress during the day, and in the afternoon orders were issued for the general advance of the 2nd and 3rd Brigades across the river next morning.

The 3rd Brigade and divisional headquarters moved bivouac in the afternoon about 2 miles, close to the eastern end of the suspension bridge, the 2nd Brigade being disposed thus:—

On north side the river (as before) 4th Sikhs and Guides Infantry.

On south " " " 1 squadron Guides Cavalry, 8th Mountain Battery, K.O.S. Borderers, and Gordon Highlanders.

17th April.—The troops crossed the suspension bridge in the following order:—

1. King's Own Scottish Borderers, at 5.30 a.m., and crowned the heights on the west side the bridge, covering the passage.
2. One squadron Guides Cavalry, and three squadrons 11th Bengal Lancers, at 6 a.m.
3. No. 4 Company Sappers and Miners, and one company 23rd Pioneers.
4. Infantry 3rd Brigade.
5. Derajat Mountain Battery.

6. The Gordon Highlanders.
7. Nos. 3 and 8 Mountain Batteries.
8. Transport for baggage and stores of 4th Sikhs and Guides Infantry, to go to their bivouac and be loaded ready to move on receipt of orders.
9. Baggage of the 3rd Brigade.
10. Baggage of the 2nd Brigade.

Immediately in rear of each unit moved, in the following order, their first reserve ammunition, tools, water mules, and signalling equipment. The remainder of baggage (which included five days' supply and the field hospitals) marched with the baggage of brigades.

The movement over the bridge was practically continuous from dawn till dark, at 7.30 p.m., by which time the whole of the troops and baggage had crossed except the five days' supply, which remained on the left bank, though close to the bridge.

The suspension bridge, 95 feet span, made of telegraph wire, and with a roadway of about 5 feet broad, constructed of beams and boards procured locally, stood the strain perfectly. It was ordered at first that only three laden mules should be on the bridge at a time, and that no camels were to cross, but this precaution was later found unnecessary.

Just at dark a telegraph camel, heavily laden, with the extraordinary perversity of its race, took upon itself to sit down in the very middle of the bridge, from which dangerous situation it was only removed with considerable difficulty. This bridge formed the only line of communication across the Panjkora until it was supplemented some time later by a fine suspension bridge of over 200 feet span.

The 3rd Brigade were engaged with the enemy, who declined to stand, at mid-day at Mamugai, the Brigade having eight men wounded.

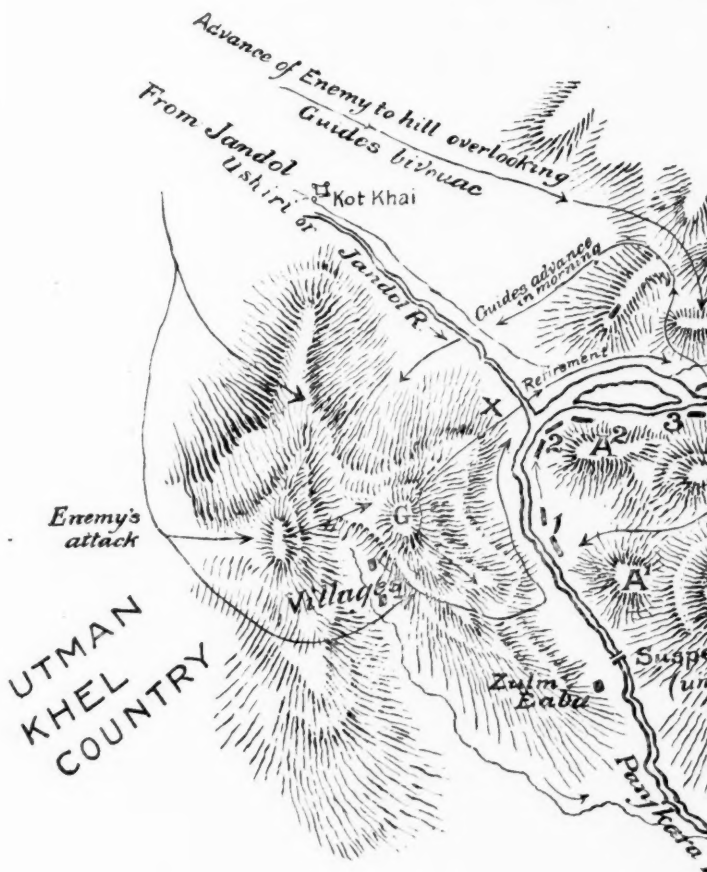
The services of the 2nd Brigade were not required, and it did not advance therefore that night beyond the vicinity of the river.

18th April.—The 2nd Brigade, marching before daylight, joined the 3rd at Ghoban at 8 a.m., and both Brigades, preceded by the cavalry, advanced on Mundah and Miankili, the chief fort and town of Umra Khan. Both places were found unoccupied. Part of the 3rd Brigade continued the advance towards Chitral, while the 2nd Brigade bivouacked near Mundah fort, and afterwards remained in occupation of this important strategical point and of other posts in Jandol, until the country was evacuated in the middle of August. With the occupation of Jandol on the 18th April and the raising of the siege of Chitral two days after, the first or active phase of the expedition was over. Much good work was done subsequently, many hardships were endured, by the 3rd Brigade in the snows of the Lowarai Pass, and by the 1st and 2nd Brigades in the hot, unhealthy valleys of Swat and Jandol, but henceforward the opposition of an enemy in the field ceased to be a material factor in the operations.

While, however, the excitement of open warfare was for the future

ACTION on the PANJKO

13th April 1895.



W. H.

Mile	1	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	0
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Scale 1 in. = 1

OF THE
PANJKORA
1895.



A' } 1st & 2nd Artillery positions
A² }

1, 2, 3 } Successive positions of Infantry, 2nd Brigade

G, Furthest advance of Guides. Peak held while parties were burning villages in valley below, to West.

X, Place where Col. Battye was killed. Furthest advance of enemy on this flank.

in. = 1 Mile.

denied, the troops of the 2nd Brigade garrisoning Jandol experienced to the full the harassment of Pathan guerilla tactics. By day all was peaceful, but by night on twenty-seven occasions in the first two months alone, sentries and piquets were fired on at short range, and even the main camps subjected to rifle fire, or rushed silently by small bands of swordsmen. Throughout the whole period of the occupation of Jandol, very nearly four months, the night duties were of necessity heavy and continuous. How these and other duties were performed is a subject of some interest, but with the 18th April conveniently closes the first portion of the acts of the 2nd Brigade.

THE SWISS ARMY MANŒUVRES, 1896.

By Major G. Le M. GRETTON, 3rd Bn. Royal Warwickshire Regiment.

PART I.

THE mere fact that Switzerland, surrounded as she has ever been by powerful, warlike, and unscrupulous neighbours, has succeeded for several centuries in maintaining her independence proves conclusively that her sons are right good fighting men. In the fourteenth century the sturdy mountaineers defeated at Mortgarten and Sempach the best troops which the Austrians could bring against them. At Lake Morat, in 1476, they routed the Burgundian army. Thirty-seven years later at Novara, the chivalry of France fled headlong before the Swiss peasantry who poured from their mountains like an avalanche into Lombardy. When the pressure on their frontiers was removed, the warlike spirit of the nation found vent abroad; and numerous corps of Swiss took service in the armies of continental Europe. Their courage and fidelity were proverbial, and found their highest expression at the storming of the Tuileries in 1792, when Louis XVI.'s Swiss Guards perished, almost to a man, in defence of their weak and unworthy master. During the great war with France, regiments of Swiss infantry took British pay, and fought shoulder to shoulder with our men at Maida, in the second and disastrous Egyptian campaign, and on the east coast of Spain, where they shared in the honours of Castalla and Biar.

Of all European countries Switzerland was the first to adopt the principle of compulsory and universal military service, limited, however, to a militia raised purely for purposes of defence; and to this principle she still adheres. We English, both in the mother country and in the colonies, largely rely upon militia and volunteers, strengthened and steadied, however, by the presence of regular soldiers; but Switzerland trusts her national safety entirely to partially trained troops.

The Swiss Army is divided into three lines. The first is the *Élite*, where men remain until they reach the age of thirty-two, when they are transferred to the *Landwehr*, in which they serve until forty-four. They then pass for the last few years of their military service into the *Landsturm*, which includes not only the trained veterans, but all the male citizens who have for any reason escaped the active duties of the *Élite*. On paper the numbers of the *Landsturm* are imposing, but as only 52,000¹ of its members are even armed, it cannot be considered a serious force. The Swiss cannot at present afford to organise it, and wisely devote their energies to developing the first two lines of their

¹ These figures are summarised from the tables in "L'Armée Suisse," a valuable work by the late Colonel Feiss, who commanded the IIIrd Army Corps,

army. It is calculated that 117,000 men of the *Élite* and 68,000 of the *Landwehr* are available for mobilisation; thus in case of war about 185,000 trained militia could be placed in the field, completely equipped in all respects, with a considerable reserve of "men with muskets" behind them. The strength of the combatant branches of the *Élite* is in round numbers as follows:—85,000 infantry, 3,000 cavalry, 17,500 field and fortress artillery, 5,600 engineers; and in the *Landwehr* the same relative proportions are maintained.

The method by which the Swiss troops are trained is very interesting, as it partakes both of the militia and volunteer systems in England. Physical education, drill, and musketry, all begin long before the recruit is called out at the age of twenty to undergo his preliminary training. The Swiss boy, at an hour when English lads are still in bed, is to be seen "creeping like snail unwillingly to school" with his books packed in a knapsack, the miniature of the ungainly pack used by the army. Drill and gymnastics are part of his regular lessons; in his holidays he is encouraged to harden his feet on walking tours; on leaving school he joins a rifle club, and continues to strengthen his muscles at a gymnasium. He is thus not quite a greenhorn when he makes his first appearance on the barrack square, where he is drilled with the greatest vigour for eight hours a day, under a discipline as severe as in any regular army. The recruits for the corps of military artificers, the train, the administrative and sanitary services, are kept under instruction for about forty days; the infantry for forty-five days; the engineers and artillery for ten days longer; the cavalry for eighty days. Thus the infantry and artillery during their first year's service are under arms only half the time which the English militia recruits spend at the *depôt* and at the training of their corps; and the extraordinary progress which the men make in these few weeks proves the truth of the French proverb, *bon chien chasse de race*. The Swiss take to soldiering by hereditary instinct, and the very high standard of education throughout the country helps the men to pick up their work. No conscript, however able-bodied, is admitted into the ranks unless he can satisfy a board of schoolmasters that he knows reading, writing, arithmetic, and geography.

After this first period of instruction (which includes a course of musketry at short, medium, and long ranges) the men are free for two years, when they are summoned to take part in the training of their corps, which are called out every other year for sixteen or eighteen days' instruction.¹

In the *Landwehr* the service is almost nominal, as the troops are only required to attend for a few days' continuous drill once in every four years. But throughout the army, including those members of the *Landsturm* who are armed, all company officers, sergeants, and privates have to go through a short course of musketry during these years when they are not otherwise employed on military duty.

Rifle shooting is even more pre-eminently the national sport in Switzerland than cricket is in England. Near every town and village

¹ The cavalry are called out annually for ten days.

throughout the country ranges are provided and maintained at public expense, and shooting clubs flourish to an extent which is almost incredible; for, according to Colonel Feiss, about 3,000 rifle clubs are recognised and subsidised by the Government, while many others exist which decline any assistance from the State. As the population of the country is about 3,000,000, there must at the lowest computation be a shooting club for every thousand of the inhabitants, including the women and children! The clubs under Government patronage are obliged to set apart a certain number of days annually for purely military shooting, when the militia of the neighbourhood fire their annual course. It lasts three days, the men fire in what we term "military positions" without rests, at 300 and 400 yards, using the rifle as a single loader; and they are also encouraged, though not compelled, to practise rapid shooting with the magazine. It is estimated that about 50 per cent. of the men only fire the legal minimum of forty rounds, but the remainder are enthusiasts, who spend every Sunday and public holiday in practising at the butts, and become remarkably good short range shots.

Let us now see how the officers are trained. It must be remembered that there is virtually no leisured class in Switzerland, and that the commissions are held by professional men and manufacturers, hotel-keepers and farmers, to all of whom time is money. Yet their sense of patriotism is so strong that they willingly submit to an amount of training, which, as far as theoretical work is concerned, is certainly superior to that of the English militia officers—though the latter unquestionably greatly excel the Swiss in grip of their men and habit of command. Before a youngster obtains his commission in the infantry, he goes through his recruit's drill in the ranks and spends a month at a training school for non-commissioned officers. As a sergeant he is employed for at least seven weeks in drilling recruits on the barrack square, and for about sixteen days more at the training of a battalion. As soon as he is gazetted he goes to a school of musketry for a month, and then for six weeks to a school of instruction for officers. Within the next twelve months he has to spend eight weeks consecutively in drilling recruits, and six weeks at a school of tactics. All this, of course, is in addition to his attendance at the regular biennial training of his corps. After every step of promotion he is required to take his turn in teaching the recruits, and to enlarge his military knowledge by attending courses in tactics and reconnaissance. If he can spare more time for soldiering, every facility is offered him to learn something of the working of the other arms, and he is attached in turn to the cavalry, the artillery, and the engineers. Everything, in short, is done to develop the intelligence and stimulate the zeal of the officers.

But in England it is apparently considered that no infantry militiaman need know anything more than drill and interior economy. No school exists where an officer can go to learn tactics practically, though he may go up for "C" and "D," and pass the examination for regular soldiers before promotion. He will be expected to display a large amount of skill in manœuvring a division, or possibly an army corps, on

paper, when, unless he belongs to a battalion which trains at a large camp, he probably has never had the chance of handling even a company in open country. As far as shooting is concerned, Hythe is so crowded with soldiers that there is room for only a very limited number of militiamen at the School of Musketry.

The officers of the Swiss cavalry, artillery, and engineers are trained on much the same lines and for the same length of time as in the infantry; while the staff spend about a hundred days in all in learning the elements of their all-important duties. A very curious feature in the Swiss army is that although there is a corps of about 250 highly-trained professional officers, their duty appears to be solely to act as instructors to the militia, for whom all commands and staff appointments apparently are reserved. Whether this arrangement would be maintained during the stress of war is a problem which only time can solve.

It would be difficult to speak too highly of the physique and intelligence of the 25,000 troops of the *Élite* who during part of September were manœuvring in the hilly country between Zurich and the Rhine. Though not tall, the men are sturdy and thick-set, and march and fight all day apparently without fatigue. The writer accompanied the troops during the last ten days of their campaign; he only once saw a man fall out, and on only one occasion did he meet troops who seemed really tired. These were a picket, who, after having been out in the open all night in pouring rain, were struggling in from the front over heavy plough-land, ankle-deep in mud, with clothes and blankets wringing wet. But only a few of the men seemed sulky or exhausted; the majority trudged stolidly on, taking all their discomforts, as part of the day's work. As a rule, their good humour never flags, and to quote the words of a Swiss officer, "you have but to appeal to our fellows' patriotism and love of country and they'll grumble at no amount of hardship and fatigue." They appear to take the keenest interest in the fighting, and work with the intelligence to be expected from troops who have a large proportion of educated men in the ranks. The IIIrd Army Corps is raised from the cantons round Zurich, where German is the mother tongue; but the knowledge of French, Italian, and even English to be found, not only among the officers, but among the privates, is very remarkable. Out of nine infantrymen who formed part of a regimental baggage guard, the writer found that six spoke good French, five knew English very fairly well, two or three knew Italian; and a polyglot corporal, a clerk in a manufacturer's office, modestly confessed to a knowledge of French, English, Spanish, Italian, and Hungarian, in addition to his native German. He had lately returned to Switzerland after a long absence, and was very busy working off the arrears of soldiering which he owed to the State; for when a man obtains leave from his trainings they are debited to his account, and he has to pay his debt to his country at the earliest opportunity.

The programme for the training of the IIIrd Army Corps had evidently been prepared with the object of giving practice in handling troops to as many officers as possible. After the first week, spent in

steady company and battalion drill, three days were devoted to brigade-drills and inter-regimental combats. The four brigadiers then manœuvred against each other with forces of all arms until their brigades were formed up into divisions. Several days' fighting between the two divisional commanders was succeeded by an attack of the whole army corps upon an enemy marked by battalions of recruits and a few guns; and the campaign was concluded by an inspection and *défilé* before the President of the Republic.

The first time I realised how hard Swiss troops work at their manœuvres was at a brigade drill, when the brigadier, after a long parade in close order, spent several hours in practising the attack. In the early part of the day various simple movements were executed with a degree of silence, steadiness, and precision really astonishing in troops which, after a two years' furlough, had only been under arms for eight or nine days. In the attack, however, though fairly well performed, want of recent training was evident, especially in the firing. Many of the younger men, when using the magazine, laughed and talked, and evidently considered that blank firing was a screaming farce; but it is only fair to say that as soon as the whistle sounded all conversation ceased. A curious explanation of this ill-timed merriment was given to me, viz., that the men practise so constantly at the butts with ball cartridge that, when called out for manœuvres, they cannot for the first few days realise that blank firing is to be taken seriously. This unsteadiness decreased from day to day, and by the end of the second week fire discipline and fire control alike seemed admirable. Even at the close of a long battle, after eight or nine hours' hard marching and fighting, and when excited by the immediate prospect of a charge, the men adjusted their sights and took cool and steady aim; the officers named the range object clearly and decisively and kept their people so well in hand, that at the first sound of the whistle the firing stopped, to use the drill-sergeant's expression, "like one man."

The attack was practised in a wide, open, undulating valley, surrounded by hills, covered with vineyards and pinewoods, from which a spectator could easily follow the movements of the whole brigade. Right across the valley stretched a line of skirmishers, apparently unsupported, except on the spot where the attack was to be driven home. Here the formation was much the same as ours—three lines, the first of which was sub-divided into firing line, supports, and reserve. The second and third lines were carefully concealed in folds of the ground or behind plantations, and, as far as I could see, were kept as long as possible in lines of columns of half companies—a formation which the Swiss adopt to a large extent. The firing line advanced by sections, which in point of strength correspond roughly to our half companies; each section was commanded by a lieutenant, who led the men for about twenty yards at the double, and then in quick time for fifty or sixty yards more. The men fired from the knee, and, though they seemed perfectly indifferent how many minutes they remained in that position, a considerable number seemed quite unable to sit down on their right heels when they fired.

Volleyes do not appear to be used: during the manœuvres I saw nothing but independent fire, limited to a specified number of rounds. It is curious to notice how averse the Swiss are to fire at anything but short ranges. Their drill-book provides for concentrated fire on columns of infantry and batteries in action up to 2,000 yards; but this regulation appears to be a dead letter; there is no firing over 400, or, at the outside, 500 yards; and on more than one occasion, when well-placed medium range firing would have done immense execution, the infantry allowed their enemy to escape scot-free.

The second and third lines advanced in waves of skirmishers, but as the brigadier sounded "cease fire" before they became merged into the firing line, there was no opportunity to judge whether they could recover their formations quickly. The first line did so very quietly and steadily, though by no means rapidly.

The Swiss are really gluttons for work. The brigadier was carrying out his attack slowly, with long pauses, so as to give his officers every opportunity of realising that an infantry attack upon an enemy's position is a lengthy process, when he suddenly remembered that the third line was peacefully engaged in doing nothing behind a hill. So to keep it usefully employed he wheeled the battalions outwards and launched them right and left in separate attacks against the slopes of the hills which bounded the valley. As soon as these subsidiary exercises were over, the third line formed up again in its proper place in the main operation.

In this brigade drill, as in all the Swiss tactical work, there was an admirable absence of bustle. No excited gallopers, no zealous staff officers confused the minds of the battalion and company commanders, who had their orders and were left to carry them out themselves. If the regimental officers went wrong, their mistakes were pointed out in very plain language at the *critique*; but during the progress of the fight the chiefs appeared rigorously to abstain from interfering in any way with the freedom of action of their subordinates.

Before the men were allowed to eat their well-earned food, they fought a short rear-guard action; and then, after an hour's rest, the brigade separated to prepare for the exercise of the morrow. One regiment (three battalions) remained in a neighbouring village, while the other was sent by a long march over the hills to fresh cantonments. So little did the men feel their long day's work, that late in the afternoon when I found one of the battalions "standing easy" outside a village, they were cheerily pelting each other with apples—windfalls from the trees with which the road was lined.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Captains—G. R. Lindley, C.B., to "Melpomene"; F. Hutchinson to "Flora"; C. J. Norcock to "Retribution" as Senior Officer on S.E. Coast of America; R. G. Gresley to "Volage"; C. H. Cross to "Champion"; W. F. S. Mann to "Anson" when recommissioned; C. G. Robinson to "Vulcan" when recommissioned. Commanders—A. Ravenhill to "Lightning"; A. Shirley to "Decoy."

The first-class cruiser "Royal Arthur," late flag-ship in the Pacific, has arrived at Portsmouth and paid off into the B Division of the Steam Reserve; the ship made a most successful full-speed paying-off trial, the engines developing 10,150-I.H.P., the speed realised being 19·8 knots. The first-class cruiser "Edgar" has arrived at Plymouth from China, having been relieved by her sister-ship the "Grafton," and has paid off at Plymouth; this highly efficient cruiser lately made 20 knots on a trial run in China. The "Nelson" has also arrived at Portsmouth from Malta with the paid-off crew of the first-class battle-ship "Hood." The second-class cruiser "Flora" has commissioned at Devonport to take out relief crews to the East Indies, and the third-class cruiser "Melpomene" takes out relief crews for the gun-boats "Sparrow," and "Widgeon" to the Cape. The new second-class cruiser "Talbot" has commissioned to relieve the third-class cruiser "Magicienne" on the North-American and West-Indian station; this new cruiser will materially add to the strength of the squadron. The sloop "Nymph" has left England for service in the Red Sea. The "Fanny," one of the old pattern coast-guard tenders, has been at last replaced at Kingstown by the torpedo-gunboat "Gossamer." The new second-class cruiser "Diana" has been delivered to the authorities at Chatham dockyard on her arrival from the works of the Fairfield Shipbuilding Company to be completed for sea. She is one of the nine cruisers of the Talbot class, and is of the following dimensions:—Length, 350 feet; beam, 53 feet 6 inches; with a displacement of 5,600 tons. She is fitted with triple-expansion engines which are to develop 9,600-I.H.P. and to give a speed of 19·5 knots per hour. Her armament is to consist of five 6-inch and six 4·7-inch Q.F. guns, eight 12-pounder guns, and three torpedo discharges. There is an armoured steel deck 3 inches thick extending from stem to stern.

The new first-class battle-ship "Prince George" has completed all her steam trials successfully. Her engines, which were supplied by Messrs. Humphrys, Tennant, and Co., are identically similar to those fitted in the "Hood," "Royal Sovereign," "Repulse," and "Empress of India." Each of the twin screws is driven by an independent set of engines, with three vertical cylinders, of collective power of 6,000 horses, giving an aggregate I.H.P. of 12,000 with forced draught and 10,000 with natural draught. The high-pressure cylinder has a diameter of 40 inches, the intermediate cylinder 59 inches, and the low-pressure cylinder 88 inches, and the length of the stroke is 4 feet 3 inches. There are thirty-two furnaces, and steam is supplied from eight cylindrical boilers, which are capable of carrying 150 lbs. of pressure per square inch. The total heating surface is 24,400 square feet. The main condensers have a total cooling surface of 13,500 square feet. The ship is lighted by electricity, Brotherhood's compound double-acting engines having cylinders coupled direct to a Siemens ironclad dynamo, being capable of giving 600 amperes and 80 volts at a speed of 300 revo-

lutions per minute, with a steam pressure of 100 lbs. to the square inch. During the eight hours' run under natural draught the ship was drawing 24 feet 11 inches forward and 25 feet 2 inches aft, and had 150.7 lbs. of steam in the boilers, the vacuum being 25.7 inches starboard and 25.5 port. With a mean of ninety-seven revolutions a minute the engines developed 10,464 H.P., or 464 above the contract, the air pressure in the stokeholds being 0.44 inch. The speed registered by patent log was 16.52 knots, and the coal consumption was 2.3 lbs. per I.H.P. per hour. During the four hours' run under forced draught she was drawing 24 feet 9 inches forward and 25 feet 3 inches aft, and the steam in boilers was 152.3 lbs., the vacuum being 26.4 starboard, and 26.3 port. The mean revolutions were 101.56 starboard, and 101.98 port, which gave a mean I.H.P. of 6,104 starboard and 6,149 port, or a collective H.P. of 12,253, the contract of 12,000-H.P. being thus exceeded. The stokeholds were remarkably cool with an air-pressure of 1.2 inch, and the speed by patent log was 18.3 knots. The thirty hours' coal consumption trial was also most satisfactory. Drawing 24 feet 6 inches forward and 25 feet aft, there was a pressure of 137 lbs. of steam in the boilers and a vacuum of 27.8 inches starboard and 27.5 inches port, while the revolutions were 83 per minute starboard and 82.8 port, giving a total I.H.P. of 6,211. The speed was 14.76 knots an hour, and the coal consumption 1.7 lb. per I.H.P. per hour.

The only novelty in the machinery of the "Prince George" is the steering gear, which is similar to that of the "Lucania" and the "Campania," and has never previously been tried on a war-ship; but seeing that at a preliminary trial 34' of helm was obtained in 12 seconds, and the whole arc from starboard to port in 19 seconds, against the 30 seconds which is regarded as good time by the older method, it is probable that Brown's hydraulic telemotor may be heard of again at ships' trials. The steering engine being directly attached to the rudder head dispenses with chains or wire ropes, and thus gets rid of the danger of fracture of ropes and chains as well as of the noise accompanying their working. The object of such a telemotor as is fitted in the "Prince George" is to supply a means of communication that shall be frictionless, however tortuous the line may be, and though there are five stations in the ship this object seemed to have been fully attained. The motive power of the apparatus is glycerine and water, which is forced through one pipe or another in such a manner as to turn the rudder to port or starboard, while the mechanism is of so sensitive a character that no great physical labour is involved in using it.

The gun trials of the "Prince George" have been as satisfactory as her steam trials. The trials were in charge of Captain E. F. Jeffreys and the officers of the "Excellent" gunnery establishment, and commenced by testing the four 12-inch (46-ton) wire guns. The three rounds from each gun were so arranged as to make the tests with regard to loading and firing thorough in every respect. The guns were trained to various degrees of elevation, and the firing was both ahead and astern, as well as from abeam. The last two rounds from each barbette were fired simultaneously. The testing of the twelve 6-inch guns consisted of two rounds being fired from each gun on various bearings. Four rounds were also fired from each of the sixteen 12-pounder guns on different bearings, and a similar number from the guns mounted in the tops. There are eight Maxim guns, and these were tested by fifty rounds being fired from each. The whole of the firing from the secondary armament was at targets, and in this case the results were also most satisfactory.

The general arrangements of the "Prince George" and her sisters are the same as those in the "Majestic" and "Magnificent," but with some slight modifications and improvements. The mountings and machinery for working the heavier guns are the outcome of the determination of the Admiralty to have everything arranged as far as possible to work by hand as well as by power. Elswick designs were adopted, and the system, which has now had a year's trial in the "Majestic" and "Magnificent," gives general satisfaction.

The guns are provided with thrust rings which fit into corresponding grooves in the cradle, and the gun is kept securely attached to the cradle by means of steel keys. The gun and mounting (when the gun is in the firing position) balance about trunnions fitted to the slides, which admit of the gun being elevated or depressed with comparative ease by hand. The main system for working the guns and mountings is hydraulic, but, as an alternative, hand gear is provided, both for revolving the turntables and otherwise working the guns. It was determined after the trials of the "Majestic" to fit electric motors to assist the hand training gear, and this modification has been adopted more or less as an experiment in the "Prince George," where each turntable will have one 5-H.P. motor arranged in such a manner that it will greatly assist the turning by hand. Also in the hand elevating gear for the guns a $2\frac{1}{2}$ -H.P. motor has been arranged to work the elevating pump.

Another feature of the design common to the "Prince George" and the later ships of the "Majestic" type is the alternative loading arrangements. A central hoist revolving with the turntable admits of powder charges being brought up to the gun in any position of the gun, and a store of projectiles in the gun-house enables the guns (or either of them independently of the other) to be loaded and fired without the loss of time necessitated by having to return to a fixed loading position. Certain details of the method of raising the powder charge are, however, new in the "Prince George." A high-speed hydraulic motor (running at about 450 revolutions a minute) is fitted in the central trunk and raises a brass case containing the powder from the magazine to the gun-house in about 15 seconds. Two cases are provided and so arranged that one travels up while the other descends. Thus in the space of a little more than half a minute a charge for each gun can be raised from the magazine. The 12-inch guns are mounted in pairs *en barbette*, but are further protected from the enemy's fire by a heavy shield built on to the turntable structure, with front plates 10 inches thick. This affords considerable protection to the guns, but without the full weight of a turret. The 6-inch guns are of the wire construction and mounted on the Elswick pedestal mounting, of which a large number are now being supplied to the Navy. They are a great improvement on former mountings, all parts being interchangeable, and admit of repair in case of damage with ease and rapidity. The 12-pounder guns and mountings, both of Elswick design, are rapidly replacing the smaller Q.F. guns, such as 6-pounder and 3-pounder, as part armament of large vessels. The whole weight of the 12-pounder gun and mounting complete with shield is only 30 cwt., and it is a most effective weapon.

The new first-class battle-ship "Victorious" has also completed her trials successfully, and throughout the eight hours' natural draught and the four hours' forced-draught trial the vessel behaved splendidly, and her machinery worked without a single hitch. A notable feature was the total absence of vibration and heating, such as is generally associated with full-power trials. Another feature worthy of note was the ease with which the engines maintained in both trials an I.H.P. in excess of that stipulated for in the contract. This high-engine power enabled the vessel to attain on her forced-draught trial a speed of 18.7 knots, being 1.2 knot above the estimated when she was designed. It should not be overlooked that the speed—18.7—knots—was that recorded as the mean rate for the four hours, as during one hour a speed of over 19 knots was logged. The mean results as forwarded to the Admiralty by their representatives were as follows:—Eight hours' natural-draught trial, steam pressure in boilers, 146 lbs.; vacuum, starboard 26.5 inches, port 26.84; revolutions per minute, starboard 99.9, port 99.3; I.H.P., starboard 5,098, port 5,218, total 10,316; air pressure in stokeholds, 26 of an inch; speed, 16.92 knots. On this trial the amount of coal consumed was 191,000 lbs., being at the rate of 2.31 lbs. per I.H.P. per hour. During the four hours' forced-draught trial the results were:—Steam

pressure in boilers 147 lbs.; vacuum, starboard 26·7 inches, port 26·4; revolutions per minute, starboard 107·6, port 103·1; I.H.P., starboard 6,139, port 6,062, total 12,201; air pressure in stokeholds, 1 inch; speed, 18·7 knots. On the natural-draught trial the "Victorious" was drawing 24 feet 6 inches of water forward and 26 feet 10 inches aft. On her forced-draught trial the draught was 24 feet 3 inches forward and 26 feet 1 inch aft. When in commission it is calculated that she will have a mean load draught of 26 feet. The smooth working of the machinery was favourably commented on by the inspecting officials, not a single adjustment having to be made from the time the vessel left Chatham until the completion of the trials. The thirty hours' coal consumption trials also gave every satisfaction, the consumption being 1·6 lb. per I.H.P. per hour, when the vessel was travelling at an average speed of 14·9 knots per hour. The steam pressure was 145 lbs. per square inch; vacuum in condensers, 27·5 starboard, 27·3 port; revolutions per minute, 88 starboard, 85·6 port. The total I.H.P. was 6,205—3,121 starboard and 3,084 port.

Two more of the "Majestic" class of battle-ships, the "Illustrious" and "Cæsar," were last month launched or rather floated out of the docks, where they have been built at Chatham and Portsmouth respectively. Their dimensions are the same as those of the other vessels of this type, viz.:—Length, 390 feet; beam, 75 feet; and a mean draught of 27 feet 6 inches, at which the displacement to the load water-line will be about 15,000 tons. The side protection extends for 216 feet of the middle of the length, and from 5 feet 6 inches below the normal water-line to 9 feet 6 inches above it, the armour-plating being of Harveyized steel 9 inches thick. At both ends of the armour-belt rounded armour bulkheads are fitted of the same material, and are 14 inches, 12 inches, and 9 inches thick. The barbettes at the forward and after ends of the battery are pear-shaped in plan, and heavily armoured with Harveyized steel, the upper tier of plates being 14 inches thick, and the lower, which is behind the side armour, 7 inches thick. Of the two conning towers, which are in circular form and both of 9 feet 8 inches internal diameter, the forward one is 14 inches thick, and the after one 3 inches thick; both being steel, the former Harveyized and the latter nickel. From the base of each tower descends a forged steel communication tube, 14 inches internal diameter, the thickness of the former one being 8 inches and the after one 3 inches. Inside these tubes are engine-room telegraph rods, and voice tubes. The protective deck between the armour bulkheads is from 4 inches to 2 inches thick. Beyond the limits of the side armour the armoured deck is formed from two thicknesses of plates, 1½-inch and 1-inch respectively.

The armament is the same as in the sister-ships, the four breech-loading 12-inch (46-ton) guns being similar, with the exception that the protecting shields will be modified in form, having mushroom tops instead of flat ones. These shields have 10-inch steel fronts, 6-inch sides, and 4-inch backs, and the floor plates are of 2-inch nickel steel, and the roofs of 2-inch plates. Of the twelve 6-inch Q.F. guns, eight are in casemates on the main deck and four are similarly protected on the upper deck. Of the sixteen 12-pounder (12-cwt.) guns, eight are placed on the upper deck, amidships, and eight on the main deck fore and aft. Each of the four fighting tops of the ship is armed with 3-pounder Hotchkiss guns, and the boat deck and bridge with eight 45 Maxim guns. There are also fitted four submerged tubes for 18-inch torpedoes—two on the broadsides forward, and two aft, and one stern tube, above water, on the middle deck, also for 18-inch torpedoes. Separate magazine and shell rooms are built for each class of gun at the ends of the ship. While the "Majestic," "Cæsar," and "Illustrious" all form part of the Spencer programme, the two latter ships are in some respects as great an improvement on the "Majestic" as the "Majestic" is on the "Royal Sovereign," experience having led to the adoption of several important improvements in the main armament. The "Cæsar" and "Illustrious" may be regarded

as improved "Majestics." The chief difference is that the "Majestic" has a fixed loading position, with an auxiliary all-round loading, while the "Cæsar" and "Illustrious," like the "Victorious" and "Prince George," have no fixed loading position, but have the same auxiliary as the "Majestic"; thus while the empty gun of the "Majestic" must come to the fore and aft position to load, thereby presenting itself as a target to the enemy should the ship be broadside on, to say nothing of the loss of time if the gun has just been fired on the beam, the new ships can reload as they fire in any position, owing to the improvement that has been effected in the design of the mounting and supply. The "Royal Sovereign," "Majestic," "Cæsar," and her sisters, thus constitute three distinct types of battle-ships, as, compared with the first-named ship, the three vessels possess more armour protection, more guns, and more casemates, while they have lighter main guns with equal penetrating power and thinner armour with equal power of resistance. The 12-inch wire guns of the "Majestic" and her sisters have, in fact, the same penetrating power as the 110-ton guns of the "Sans Pareil" and "Benbow," while the 9-inch side armour is equivalent to 18 inches of iron armour in ships of the "Inflexible" type; and, whereas the "Royal Sovereign" has all vertical and horizontal deck armour, the "Majestic" and her sisters have vertical in combination with side armour, so that by a re-arrangement of the same weights a greater resistance is afforded. The gun mountings are designed and supplied by Sir John Whitworth and Co., and the machinery has been manufactured by Messrs. Maudslay, Sons, and Field.

There is one principal difference between the "Illustrious" and the "Cæsar," viz., in the fitting of the boilers of the former for induced draught, while in the latter the forced-draught system has been adhered to. The success which has attended the adoption of induced draught in the case of the "Magnificent" has encouraged the contractors for the engines of the "Illustrious"—Messrs. J. Penn and Sons—with the concurrence of the Admiralty, to follow the same system in the case of the "Illustrious." The idea is, instead of forcing the air into the ash-pits of the furnace by means of fans in the stokehold, to draw the air by fans placed in the funnels. Various modifications of the original mechanism have been introduced, and the system is now expected to give satisfactory results. Messrs. J. Penn and Sons have fitted the ship with eight boilers, with four furnaces and two combustion chambers in each. The engines are of the inverted, vertical triple-expansion type, and have an I.H.P. under induced draught of 12,000. With this power the speed will be $17\frac{1}{2}$ knots. The total bunker capacity of the "Illustrious" is 1,890 tons, which is somewhat less than that of the "Cæsar." This amount of coal will enable the ship to steam for twenty-eight days at 10 knots, making due allowance for consumption for auxiliary purposes.

ARGENTINE REPUBLIC.—The new torpedo-boat destroyer "Entre-Rios," built by Messrs. Yarrow for this Government, has completed her trials. The vessel is 190 feet 8 inches long by 19 feet 6 inches wide, her depth amidships being 12 feet. The machinery consists of two sets of triple-expansion engines of the type usually placed in craft of this nature. The cylinders are 18 inches, 26 inches, and $39\frac{1}{2}$ inches in diameter by 18 inches stroke. There are six boilers of the Yarrow water-tube type. The weight of each of these boilers is $6\frac{1}{2}$ tons, with water and fittings, and they are designed to supply steam for 4,000-I.H.P., which is about the power developed at full speed. The propellers are of manganese bronze, each with three blades. The general arrangement of the cabins differs from that followed in the English Service, chiefly in the fact that the officers have the forward part of the vessel, where there is least vibration and noise, assigned to their use. The officers' cabins and mess-rooms are placed as near amidships as the engines will permit. The petty officers have quarters aft, and the crew, as usual, are berthed right forward. The leading feature in the design is the armour by which the middle length is protected. This entirely surrounds the

machinery space, there being $\frac{1}{2}$ -inch thwartship bulkheads, as well as the side armour. This, of course, adds considerably to the weight, and, as a consequence, detracts somewhat from speed.

The armament consists of a 12-pounder Q.F. gun on the conning tower, whilst there are three 6-pounder and two Maxim-Nordenfeldt machine guns on deck. There is one 18-inch torpedo-tube forward and two 18-inch swivel torpedo-tubes on deck. The bunkers will hold 80 tons of coal, which will give approximately 2,500 miles radius of action at about 10 knots speed.

The "Entre-Rios" was taken out for her official trial on September 1st. The boat left the yard at Poplar shortly after eight in the morning. The draught was taken at Gravesend, and was found to be 4 feet 2 inches forward and 4 feet 10 inches aft, or a mean of 4 feet 6 inches. The coal was 20 tons, the total load being 35 tons. The boat reached the Maplin mile about 11.30, when the three hours' trial was at once commenced with the usual six runs, the weather being fine. The following is a copy of the official record of the runs on the measured course:—

Hour	Steam	1st Receiver	2nd Receiver	Vac.	Air forward	Air Aft	Revolutions	Time	Speed
h. m.	lb.	lb.	lb.	in.	in.	in.	p. mn.	m. s.	knots
11 34	148	67.5	10.5	25	1.5	1.75	368.0	2 18	26.087
11 44	150	65.5	10.0	25	1.5	1.75	370.0	2 9	27.907
11 52	150	67.0	10.0	25	1.5	1.75	369.5	2 18	26.087
12 2	146	62.5	9.5	25	1.5	1.75	364.0	2 10	27.693
12 11	145	61.0	9.25	25	1.5	1.75	358.5	2 23	25.175
12 20	145	60.0	8.5	25	1.5	1.75	361.0	2 10	27.693
Mean of 6 miles	147	64.0	10	25	1.5	1.75	365.0	—	—

The boat was afterwards taken down the Swin to the Gunfleet, and the trial was finished about three miles above the Mouse Lightship. The mean total revolutions were 65,665, or 364.8 per minute, thus giving a mean speed of 26.75 knots.

It will be noticed that the steam pressure on the runs averaged 147 lbs., but as the boilers and engines were designed to work at 220 lbs., it will be seen that the rate of steaming was well within the limits of speed that could be obtained, more especially as the air pressure was very moderate. The guaranteed speed with the load of 35 tons was 26 knots, which was exceeded by $\frac{1}{4}$ -knot.—*Engineering*.

FRANCE.—The following are the principal appointments and promotions which have been made: Vice-Admirals—E. Parrayon to command of the Squadron of the North, vice Régnauld de Prémèsnil; J. M. A. Cavelier de Cuverville to command of the Active Squadron of the Mediterranean Fleet, vice Gervais. Rear-Admirals—O. Le Borgne de Kérambosquer for service at Brest Dockyard; M. F. de Bausset-Roquefort Duchaine d'Arbaud to be Chief of the Staff of the 2nd Arrondissement Maritime at Brest; E. C. Chauvin to be an Inspector-General of the Navy. Capitaines de Vaisseau—M. H. Douzans to "Triomphante" and to command Naval Division in Cochinchina; F. A. Leygue to "Magenta." Capitaines de Frégate—G. J. Havard to "Héroïne" and to command Naval Division in Senegal; J. Baëhme to "Léger"; C. L. Duproch, P. A. Campion, L. P. Noël, G. E. d'Aboville to Capitaines de Vaisseau.—*Le Moniteur de la Flotte*.

Vice-Admiral de Cuverville hoists his flag on board the first-class battleship "Brennus" in command of the Active Squadron on the 12th inst. The Second Division of the Active Squadron, under the command of Rear-Admiral Pottier has proceeded to the Levant; the division is composed of the fol-

lowing ships: Battle-ships—"Dévastation," "Marceau," "Courbet"; Torpedo-Avisos—"Wattignies," "Vautour," "Léger," and "Flèche." The First Division of the Squadron of the North, consisting of the battle-ship "Hoche" (flag-ship), the coast-defence battle-ships "Valmy," "Jemmappes," the second-class cruiser "Chasseloup-Laubat," the torpedo-avisos "Cassini," with the torpilleurs-de-haute-mer "Lance" and "Ariel," has arrived at Cherbourg for the winter, and their crews on the 1st inst. were placed on the reduced footing of *effectif d'essais*; the Second Division of the Squadron, under Rear-Admiral Courthille, consisting of the coast-defence battle-ship "Bouvines" (flag), the armoured-cruiser "Dupuy de Lôme," the second-class cruiser "Friant," the torpedo-cruiser "Épervier," the torpedo-avisos "Salve," and the torpilleur-de-haute-mer "Aquilon," will winter at Brest. The whole squadron was, however, re-united at Cherbourg for the arrival of the Tsar, being temporarily strengthened by the first-class battle-ship "Charles-Martel," which is on her trials, the coast-defence battle-ship "Amiral-Tréhouart," the first-class cruiser "Jean Bart," the first-class armoured-cruiser "Bruix," and the second-class cruiser "Descartes," the two last being also on their trials. The third-class barquette-cruiser "Lalande" has been placed in the second category of the Reserve at Toulon. The torpilleur-de-haute-mer "Aventurier," commissioned on the 17th ult. to take the place of the "Audacieux," sunk during the manœuvres. The new second-class cruiser "Descartes," whose stability is not satisfactory, is to receive 125 tons of ballast, of which 90 tons will permanently be fixed in cement and the rest remain movable. The temperature of her magazines has also been found excessive (111°F.), and will necessitate interior alterations.

On the 29th September the new torpedo-dépôt ship "Foudre," of 6,080 tons, 12,000-I.H.P., took the ground when on her steam trials near Porquerolles. It is stated the accident was caused by an endeavour to turn when there was not sufficient room, the Captain being desirous to avoid crossing the bows of the flag-ship of the Reserve Fleet which was coming out of harbour at the time. The "Foudre" was travelling at a high rate of speed, but the bottom was fortunately soft mud, and after lightening her as much as possible she was successfully floated, apparently without injury.

During the recent full-speed trial of the Active Mediterranean Squadron, the "Brennus" averaged 16.5 knots, but the speed of the other ships is not given. Of the five torpilleurs-de-haute-mer attached to the squadron, the "Flibustier" attained 21½ knots, the "Kabyle" 18.5, the "Sarrazin" 18.2, while the "Tourmente" and "Éclair" sustained damage, the latter being compelled to retire from the contest.

The "École supérieure de Guerre" composed of the three armoured first-class cruisers "Amiral-Charner," "Suchet," and "Latouche-Tréville," under command of Rear-Admiral Fournier, has been undergoing a very searching inspection at Toulon by Vice-Admiral Ricunier. It is generally thought that the abolition of this "Naval Staff College," as it may be termed, has been under consideration, and that Admiral Ricunier was sent to Toulon with a view of finding some good excuse for its suppression. The "École supérieure de Guerre" was the creation of M. Lockroy, a civil minister, and the French papers hint that it has never found favour with the higher officers of the Navy, as it is intended that in the future all staff appointments shall only be given to officers who have passed through the "École supérieure de Guerre," and this will seriously interfere with the patronage now exercised by admirals when appointed to a command.

The Minister of Marine has placed an order with the Normand firm of Havre for a new torpilleur-de-haute-mer of 150 tons with a speed of 30 knots, to be called the "Cyclone," and for two torpedo-avisos of 300 tons, to be called the "Durandal" and "Hallebarde," which are to have a speed of 26 knots. In view of the miscalculation regarding the stability of some of the recent French war-

vessels, the Minister of Marine has also created a special commission whose duty it will be to study at six months' intervals the changes in the condition of the stability of ships under construction as fresh material is worked into them.

The court-martial held at Brest on 6th September for the trial of Lieutenant Testot-Ferry for the loss of the "Audacieux" after collision with the "Chevalier," on the night of 10th July last, has resulted in the honourable acquittal of that officer.

The first-class battle-ship "Saint Louis" was launched at Lorient on 8th ult. She is a sister-ship of the "Charlemagne" and the "Gaulois," which latter is still on the stocks at Brest, and has been built from the plans of M. Thibaudier; she takes the place of the "Henri IV.," which is now to be a smaller coast-defence battle-ship. Her dimensions are as follows:—Length, 385 feet 6 inches; beam, 66 feet 6 inches; and with a draught of 27 feet 6 inches the displacement is 11,275 tons. Four 30-centimetre (11·8-inch) guns are mounted in pairs in turrets, one forward and one aft, protected by 15·7-inch armour, and can be worked either by hand or electricity; and there are ten 5·5-inch Q.F.'s, of which eight are in a redoubt on the upper deck in angle ports, four for bow and four for stern fire, separated by steel splinter bulkheads and with 3 inches of steel for protection, and the other two in sponsons on the spar deck, where also are eight 3·9-inch guns. On the superstructure and in the two fighting masts sixteen 1·8-inch and eighteen 1·4-inch guns are mounted. The ship has an end-to-end belt of Harveyized steel, 6 feet 7 inches deep, the extremities being of special nickel or chrome steel, with a maximum thickness of 15·7 inches amidships, surmounted by another light belt 3 feet 3 inches wide of 3-inch nickel steel, and there are two steel decks (3·5-inch and 1·5-inch) severally at the level of the top and bottom of the main belt, the intermediate space being subdivided for coal stowage. Three triple-expansion engines, driving as many screws, are supplied by twenty sets of Belleville boilers, with a maximum of 14,000 H.P. (forced draught), giving a speed of 18 knots. The extreme coal capacity is 1,000 tons, but the normal coal supply is only 570 tons. The "Saint Louis" was ordered to be put in hand in September, 1893, but she was not actually begun until later, and the end of 1899 is mentioned as the date of completion. Great preparations have been made for a "record" achievement in the building of the "Gaulois," a sister-ship, which was to be launched on the 6th inst. The order to begin work was issued on January 22nd last, and she has been pushed forward very rapidly. July, 1899, is the date officially given for her delivery by the building yard.

In view of the late accident to the boilers of the new battle-ship "Jauréguiberry," the Minister of Marine has decided to suspend temporarily the construction of the boilers for the new first-class cruiser "Châteaurenault," which were to have been of the D'Allest and Lagrafel type, as well as those for the new first-class cruiser "Guichen" and the new third-class cruisers "D'Estrées" and "K 3." It is further stated that Normand boilers will be placed in the "Châteaurenault." *La Marine Française* points out that there as yet has been no trial of the Normand type of boilers in any large ship, and that officers, who have commanded torpedo-boats fitted with either the Du Temple or Normand boilers, complain that although satisfactory when new, yet that the tubes become foul very quickly, and that many require renewing after 18 months' service; that the circulation is not sufficiently active, and that the boilers are worn out after three years. Under these circumstances, it would seem that an exhaustive trial is necessary before adopting the Normand boilers on a large scale for the new ships.

According to the new regulations, which came into effect on the 10th June last, the Effective List of Officers of the Fleet is fixed as follows:—15 vice-admirals, 30 rear-admirals, 125 captains "de vaisseau," 215 captains "de frégate," 377 lieutenants "de vaisseau," 1st class; 377 lieutenants "de vaisseau," 2nd class; 420 ensigns "de vaisseau," and 170 aspirants of the 1st class; the numbers of the aspirants of the 2nd class varies according to the requirements of the Service.

The relative ranks of the Navy and Army are as follows :—Vice-Admiral with General of Division, Rear-Admiral with General of Brigade, Capitaine de Vaisseau with Colonel, Capitaine de Frégate with Lieutenant-Colonel, Lieutenant de Vaisseau with Captain, Enseigne de Vaisseau with Lieutenant, Aspirant 1st class with Sub-Lieutenant. Promotion is regulated as follows :—For lieutenant, two years' service at sea is necessary, and the vacancies are filled two-thirds by seniority and one-third by selection; for capitaines de frégate, four years' sea-service in previous grade are compulsory, and the nominations are one-half by seniority and one-half by selection; for capitaines de vaisseau, three years' service in previous grade are compulsory, one of which must have been in command, and all the promotions to this list are by selection. The nominations to and on the flag-lists are all by selection; for the grade of rear-admiral three years' command at sea are compulsory, or four years, of which two must be passed in command of a naval division of three ships; for vice-admiral, two years' service as rear-admiral are required. The age for retirement remains unchanged, capitaines de vaisseau are retired at sixty, capitaines de frégate at fifty-eight, and lieutenants de vaisseau at fifty-three. Officers on the flag-list are retired on application; vice-admirals remain in active service until sixty-five, and rear-admirals until sixty-two, after which ages they pass to the Reserve. For mobilisation in war-time officers from the Reserve are taken, at first those who have recently retired, then those officers who have been on retired pay for less than five years, and finally those who have been inactive for more than five years. Captains of merchant vessels, less than thirty-five years of age, of proved capacity, are also liable to service.

According to the Budget for 1897 the foreign squadrons are to be constituted as follows :—

Atlantic Division.

Second-class cruiser—"Dubourdieu" (flag-ship of Rear-Admiral Commanding).

Third-class cruiser—"Fabert."

First-class aviso—"Fulton."

For Newfoundland and Iceland Fisheries Service.

Third-class cruiser—"Laclocheterie" (senior officer).

Aviso-transport—"Manche."

Pacific Division.

Second-class cruiser—"Duguay-Trouin" (carrying pennant of senior officer).

Third-class cruiser—"D'Estaing."

First-class aviso—"Amiral-Parseval."

Aviso-transport—"Eure."

China Division.

Third-class battle-ship (cuirassé de croisière)—"Bayard" (flag-ship of Rear-Admiral Commanding).

Second-class cruiser—"Descartes."

First-class aviso—"Vultigeur."

First-class gun-boats—"Comète," "Surprise."

Cochin-China Division.

First-class gun-boats—"Aspic," "Vipère."

Second-class gun-boats—"Bouclier," "Baïonette."

In Reserve at Saigon.

Cuirassé de croisière—"Triomphante" (senior officer's pennant).

Armoured gun-boat—"Styx."

Gun-boats—"Lion," "Caronade," "Cimeterre."

Second-class aviso—"Pluvier."

Torpedo-boats—Six third-class, two of which are in commission.

East Indian Station.

Third-class cruiser—"Lapérouse" (carrying senior officer's pennant).

First-class aviso—"Dumont d'Urville."

For Special Service.

Third-class cruiser—"Éclaireur."

SHIPS FOR LOCAL DUTY IN THE COLONIES.

At Algiers.

Torpedo-aviso—"Dague."

Tenders—"Chélif," "Seybouse."

At Tunis.

Torpedo-cruiser—"Condor."

At Constantinople.

Second-class aviso—"Pétrel."

Tender—"Étincelle."

Senegal and the Guinea Coast.

Second-class avisos—"Ardent," "Mésange."

Depôt-ship—"Héroïne."

Tender—"Marigot."

In the French Congo.

Second-class aviso—"Cigogne."

At Guiana.

Third-class aviso—"Lézard."

At the Society Islands.

Aviso-transport—"Aube."

Tender—"Papute."

SERVICE OF THE DÉFENSE MOBILE.

At Cherbourg.

Central depôt-ship—"Isis."

Torpedo-boats—Four first-class and four second-class in commission; fourteen first-class, fourteen second-class, and one third-class in reserve.

At Dunkirk.

Armoured gun-boat—"Flamme."

Torpedo-boats—Two first-class and two second-class in commission.

At Brest.

Central depôt-ship—"Navarin."

Torpedo-boats—Two first-class and six second-class in commission; eight first-class and four second-class in reserve.

At Lézardrieux.

Depôt-ship—"Rhin."

At L'Aberwrach.

Depôt-ship—"Obligado."

At Lorient.

Central depôt-ship—"Yonne."

Torpedo-boats—One first-class and four second-class in commission; two first-class, four second-class, and nine third-class in reserve.

At Rochefort.

Central depôt-ship—"Embuscade."

Torpedo-boats—One first-class and four second-class in commission; four first-class, two second-class, and six third-class in reserve.

At Toulon.

Central depôt-ship—"Cérès."

Torpedo-boats—Three first-class and six second-class in commission; thirteen first-class, seventeen second-class, seven third-class, and six vedette-boats in reserve.

At Corsica—Bastia and Bonifacio.

Depôt-ships—"Entreprenant," "Bergeronette," at the first-named, and "Hamelin" at the last-named places, respectively.

Torpedo-boats—Six first-class and two second-class in commission; two first-class and two second-class in reserve.

In Algeria.

Torpedo-boats—Six first-class and five second-class in commission ; four first-class and four second-class in reserve.

At Tunis.

Central dépôt-ship—"Talisman."

Torpedo-boats—One first-class and one second-class in commission.

—*The Yacht, Temps, Journal des Débats, and Annexe No. 6 du Projet de Loi (Budget des Dépenses du Ministère de la Marine).*

RUSSIA.—Rear-Admiral Makaroff, commanding the Evolutionary Squadron in the Baltic, has been promoted to Vice-Admiral.

A further advance has been made towards the strengthening of the already formidable Black Sea Fleet, by the launch at Nicolaieff on the 2nd ult., in the presence of H.I.H. the Grand Duke Alexis, Commanding Admiral of the Russian Navy, of the new first-class battle-ship "Rotislav." Her dimensions are as follows:—Length, 341 feet ; beam, 66 feet 6 inches ; and with a draught of 24 feet she will displace 8,880 tons. Protection is afforded by a belt of compound armour, which extends nearly four-fifths the length of the ship, reaching 3 feet 3 inches above and the same below the water-line, and is 16 inches thick amidships, tapering to 12 inches at the extremities ; above this belt rises a central redoubt, 150 feet long, protected by 5-inch armour with armoured transverse bulkheads of the same thickness ; the armoured deck is 3 inches thick tapering to 2 inches. There are two vertical triple-expansion sets of engines, with sixteen cylindrical boilers, which are to develop 8,500-I.H.P. under forced draught, giving a speed of 16 knots. The normal coal stowage is 550 tons, but 800 tons can be carried on an emergency, giving a radius of action of 2,000 sea-miles at 10 knots. The armament consists of four 12-inch guns in couples in turrets, one forward and one aft, protected by 12-inch armour tapering to 10 inches ; each pair of guns has an arc of training of 270° ; six 5.9-inch Canet Q.F. guns in the central redoubt ; sixteen 3 and 1-pounder Q.F. guns and six torpedo-tubes, one bow, one stern, and four broadside. All the guns will be made by the Obukoff Steel Works. Twenty-five months have elapsed since the keel of the ship was laid.

Rear-Admiral Alexieff has arrived in the Mediterranean with the battle-ships "Imperator Alexander II." and the "Navarin," forming the contemplated reinforcement to the squadron in those waters ; it is further stated that the new coast-defence battle ship "Admiral Senjavin" is also to be sent to join the fleet. The torpilleurs-de-haute-mer "Polangen" and "Pakerord" have arrived at Cherbourg, where they will be fitted with Du Temple water-tube boilers. Two new first-class torpedo-boats, Nos. 119 and 120, built at Cronstadt, have completed their trials, averaging 22.5 and 23.7 knots respectively.

New regulations have been promulgated for the Naval Academy at Nicolaieff, instituting special courses for officers, in navigation, hydrography, naval construction, and engineering, as well as a one-year special course in naval history. A course in naval tactics will be open to staff-officers and senior lieutenants who have six years' sea-service, the number of students being limited to eighteen. The sessions for study will last seven months each year.—*The Rasvêdchik and Yacht.*

MILITARY NOTES.

PRINCIPAL PROMOTIONS AND APPOINTMENTS DURING
SEPTEMBER.

Colonel J. B. Sterling, h.p., Coldstream Guards, to be Major-General ; Brevet-Colonel Sir H. H. Kitchener, K.C.M.G., C.B., A.D.C., R.E., Sirdar of the Egyptian Army, to be Major-General, in recognition of his services in command of

the Expeditionary Force; Major-General Sir Baker C. Russell, K.C.B., K.C.M.G., to command the Bengal Army; Major-General L. V. Swaine, C.B., C.M.G., to command the North-Western District; Major-General W. O. Barnard, to command the 2nd Infantry Brigade, Aldershot District; Colonel A. FitzRoy Hart, C.B., *p.s.c.*, h.p., to be A.A.G., Belfast; Colonel G. F. W. Moir to command the Dépôt, West India Regiment; Colonel J. G. Ponsonby, *p.s.c.*, Royal Berkshire Regiment, to be Military Attaché, Constantinople.

HOME.—Some interesting experiments were conducted at Longstock, near Fullerton, in Hampshire, on the 29th ultimo, with the machine gun owned by Captain A. H. East and Lieutenant A. E. East, of the 1st V.B. Hampshire Regiment. Very effective practice was made at 900 yards at a stationary target 6 × 6; preparatory to which several rounds were fired at the same distance, to test the accuracy of a statement which appears in Major E. S. May's interesting book, "Guns and Cavalry." On page 189 Major May states that practically no assistance can be obtained from machine guns in determining a range, or what is recognised amongst artillerymen as "the error of the day," beyond 600 yards; because the result of the shots upon the ground cannot be seen unless when firing on a sandy waste, or over water. On this occasion the result of the shots was clearly seen on ground which was the reverse of sandy—ordinary soil and fairly damp. A number of rounds were then fired at 800 yards at a moving target, consisting of the figure of a man painted on a second-class target. The target moved at a rate of between four and five miles an hour, and when fired by novices the gun showed the following percentages of hits to shots fired:—28·2, 34·5, 32·8, 34·4, and 45·4.

The most interesting and instructive of the experiments were those in connection with indirect fire. The calculations as to the clinometer angle of elevation to be given to the gun were made by Captain A. H. East, and the actual time occupied from their commencement to effective fire being opened was twenty minutes. A clinometer elevation of 4° 10' was found, and, of the first group of three shots fired at that elevation, one struck the target high, and the other two passed over the top. The operator then remembered that he had omitted to deduct, as he should have done, 4' for the "error of the gun" (*i.e.*, the top of the cover on which the clinometer was placed in laying had an inclination to the axis of the barrel of 4', and when the gun was laid by the clinometer at 4° 10', the axis of the barrel was really at 4° 14'). The elevation was lowered accordingly, and fifty-seven of the remaining sixty-six shots fired hit the target. The experiments concluded with firing at a line of dummies at about 800 yards. But in this very few hits were made, though the fire was observed to be correct as to deviation. As a general result of these latter experiments, it may be concluded that the machine gun will certainly prove useful when the circumstances lend themselves to indirect fire; but, on the other hand, it is unfitted for employment against infantry in extended order.

Time was when the announcement of a "new drill" excited no small stir in the military world. Changes succeeded one another with such startling rapidity that instructors were prepared for almost anything. It has not been so this time. The notification that the *Infantry Drill* of 1893 was to be superseded, after three years of existence, was received with only a languid curiosity. It was foreseen that, on the one hand, the reduction of simplification to its lowest terms, and the acknowledged merits of the "square" drill, in the 1893 book left but little scope for revision in that direction; and, on the other, that it was inevitable that the new regulations for physical training, and the modifications in the rules for night operations, the supply of ammunition to troops in action, assaults, and the conduct of field manœuvres should be incorporated in the text of its successor. These anticipations have not been falsified: the drill proper has hardly been touched, and the advanced subjects appear with their valuable modifications duly

interwoven with the former instructions. The drill of the squad, company, and battalion requires but brief comment.

1. *The Squad*.—The recruit will receive his rifle after a *month's* drill; in saluting, "if a number of men are sitting or standing about, the senior N.C. officer, or oldest soldier, will call the whole to attention and salute." Marching in slow time is restored, but its abuse is guarded against—no more time is to be devoted to it than will ensure the soldier being properly balanced on his limbs. In marching with arms (p. 29), "the disengaged arm will be allowed to swing naturally." Surely not in marching in slow time at the shoulder? Physical training (already issued in a separate form) precedes physical drill with arms. Section 46 also contains dumb-bell exercises, jumping, horizontal bar, and parallel bars. In extended order, if rifles are loaded or magazines charged they will be carried at the slope. The instructions for firing advancing, or retiring are slightly modified. "The whistle is to be used to control the firing" (p. 66); but "should not be used to attract attention when with troops actually firing" (p. 70).

2. *The Company*.—In proving, the order to form fours right, left, or about, is omitted. *Markers*.—The functions of these (when ordered to be employed) remain as before in the General Rules; but in the two movements in which they appeared (forming from column into line, and changing front as a base company: pp. 78, 80), the reference to them in the text has been struck out. Yet in battalion, when forming from column into line (p. 93), we find, as before, that both markers of the leading company, and the markers of the inner flanks only of the remaining companies, will give points. If markers are not wanted, well and good; if they are, should they not as hitherto be taught in company what they may have to practise in battalion?

3. *The Battalion*.—When a column or quarter column is on the march, the C.O., should he consider it desirable, will instruct one of the mounted officers to superintend the direction. The old instructions for dressing a battalion in line struck out in 1892 are restored, as also is deploying on the march. In meeting attacks by cavalry, the C.O. will give the order to dress back, or up, the threatened or the unmolested flank of a firing line. The paragraph as to the independent action of a company is struck out. In forming square from column, an omission is rectified; each company, as it gets into position, will be ordered to fix bayonets. A similar (apparent) anomaly to that mentioned above occurs in connection with markers; they are clearly told what to do in the General Rules (pp. 87, 88), for deployments, changes of front or position, and dressing in line, but ignored in the detail for deployment and changes of front, while they crop up in forming line from echelon (p. 104).

Brigade drill remains unchanged.

In Part V. (Combined Tactics) we come to more important matters. In the infantry assault:—When, from the configuration of the ground, the stubbornness of the defence, or the distance between the point necessarily adopted for the inception of the assault and its goal, it is not possible to lead the assaulting troops through decisive ranges in an uninterrupted advance to the point of assault, then the second line of troops, carrying portions of the first line with it, must press forward, firing as they go, and rush on the enemy's position with vigour and determination. Throughout the advance advantage is to be taken of every opportunity to reform or tell off the troops engaged. This is more especially necessary immediately after the delivery of a successful assault, when the confusion which inevitably accompanies a charge gives the enemy a chance of, at all events, delaying pursuit by a vigorous counter-attack with his reserves, if indeed he does not succeed in driving out the assaulting troops.

Counter-Attack.—Except when it is merely intended to deny a passage to the enemy, every defensive position should be taken up with a view to this.

Infantry in Attack.—When the C.O. has selected the point of his main attack and continuous reinforcements are necessary, such reinforcements can only

advance direct to the front when within the fire-swept zone. During this period the *second line* has been assembling in several lines deep opposite to that portion of the enemy's position which is to be taken cost what it may.

"The critical moment has now come. Orders are given for the final assault. The second line advances, and as it strikes the first line carries the assaulting portions of it forward. As this movement is repeated, by the constant accession of fresh troops pressing into the firing line, the whole continuously advance and, when near enough, rush on the position."

The Company in Attack.—The captain will give the range when possible. When two or more subalterns are present, one will be always with the firing line; half-company commanders in that line will give the range (if it is not stated by the captain), and nature of fire, watching it with field glasses. All firing will be controlled by the whistle; yet the whistle should not be used to attract attention when the company is actually firing (p. 144).

Section 132. *Supply of Ammunition to Troops engaged.*—This section is considerably changed. Instead of the old battalion reserves, infantry brigade ammunition reserves will, in future, be formed. Each brigadier will detail a selected officer, for whom a horse is supplied with the brigade staff, to command the brigade ammunition reserve, formed from the ammunition carts of his battalions. Brigadiers, officers commanding battalions, and the officer commanding the brigade ammunition reserve must keep themselves mutually informed of each other's positions. The officer commanding the brigade ammunition reserve will, as soon as possible, open up communication by signallers with the ammunition column. A mounted orderly will be sent to him from the column, to be used only for the purpose of communication with the column when signalling is difficult. One loaded small-arm ammunition cart and one loaded mule will follow each half-battalion into action, the mule in rear of the supports, the cart in rear of the reserve; and the brigade ammunition reserve will follow in rear of the centre of the brigade. When a cart with a battalion is emptied it will be sent back to the brigade ammunition reserve, and will be replaced by a full cart by order of the officer in charge. As soon as there are four empty carts with the brigade reserve, they will be replaced by full carts from the divisional ammunition column. In the event of a brigade in action being ordered to advance through woods or broken ground, where lateral communication cannot be kept up, the ammunition carts of the brigade reserve will be distributed as the general officer commanding may direct, and will follow the battalions. In the case of a battalion being despatched to any distance, the same course will be pursued. The brigade reserve will be formed as soon as practicable.

In *Route Marching* appears the following new par.:—"The watchful care of officers can alone ensure that marches are conducted with the least possible strain on the men. A small check at the front of a long column is a serious delay to the men in rear of it, and continued stepping out or rapid closing tends to exhaust troops. Company officers must continually watch to see that their companies maintain their proper positions in the column of route."

Part VIII. *Operations by Night.*—In Section 178 we find:—Before undertaking a night march, the roads or route should be reconnoitred and any points noted where checks are likely to occur. If the march is to take place on roads or tracks, the general compass direction should be known. All turnings that are not to be used should be blocked, or, if this is not possible, men must be posted at these points. The services of guides should be obtained. A rough tracing from the map placed over a piece of cardboard prepared with luminous paint is a great assistance. When no tracks exist, the route must be fixed by compass bearings, the points where any change of direction is necessary being carefully noted, and the distances between clearly defined and easily recognisable points measured and timed. When selecting features of the ground to serve as landmarks for a night march, the officers chosen to lead the columns should, if possible, visit just

before dark the ground to be passed over (or, at any rate, a portion of it), returning after dark. They will then be able to recognise by night useful features that would escape their notice if only seen by daylight. The officer leading the advance must be sufficiently far to the front to prevent the needle of the compass from being affected by rifles. Connection between him and the troops should be kept by means of men extended at several paces distance. This plan has the further advantage of giving time for verifying the direction without checking the troops, the connecting files merely closing up. An officer should invariably be detailed to check the distance marched. Features of the ground that show against the skyline and that have been previously observed and fixed, or the moon or stars if in the required direction, may be used as temporary aids, the bearing being verified from time to time. To secure secrecy, orders for a night march should be given out as late as possible. Cavalry patrols should precede the column, the remainder of the cavalry and the artillery marching at its least exposed end. The covering troops should not be far from the main body, and constant communication must be kept up between all portions of the column. Absolute silence must be maintained, and no smoking or lights allowed. Rifles should be carried at the slope and on no account to be loaded. Halts should be at stated hours and for a definite time. During halts, mounted troops should stand to their horses; other troops will lie down, but will not leave the road. An orderly officer should be detailed for the brigadier from each unit in the brigade. The brigadier should have a fixed position in the column, and should stay there.

Part IX. *Ceremonial*.—In addition to the order to march past in quick time at the slope, it is laid down for the first time that rifle battalions will in column go by at the trail. In the manual and firing and bayonet review exercises it is to be regretted that the instructions for the movements of captains, etc., have been replaced by a reference to the *Rifle Exercises*: this may save a very few lines of type; but is annoying.

Review of a Brigade commences with the following paragraph:—*Points of Formation*.—To enable battalions, when in a column formation, to dress correctly on the same general alignment, the markers of the leading companies will give points, as directed in 58 (9), on which the flanks of their companies are to rest. The markers will be covered by the brigade-major from the point of appui. If the battalions deploy into line the outer markers of the remaining companies will move as directed in 76 (6), being covered on the base markers by a mounted officer. On a signal from the brigade-major, base markers will resume their places in the supernumerary rank.

When a division or large body of troops is reviewed, it will not march past in mass unless specially ordered to do so.

In the General Rules for *Guards* the following new paragraph has been inserted:—A guard of honour will form up at open order, the commander three paces in front of the second file from the right, or, in a confined space, from the flank by which the personage for whom the guard is mounted will approach, the officer carrying the colour three paces in front of the centre; if there is a third officer, he will be three paces in front of the second file from the other flank.

Guards will march with bayonets fixed and arms at the slope, except when furnished by rifle battalions, when they will march with arms at the trail.

The officer carrying the colour will march in the centre of the guard.

In wet weather arms will be carried at the secure.

Trooping the Colour has been rewritten almost entirely on old lines, slow time being again legalised.

Part X. *Rules for the conduct of Field Manœuvres*.—These have been revised in accordance with A.O. 137 of this year. In framing special ideas the scheme must be suitable to the force to be employed, and the ground available. When the ground is limited, or forbidden ground intervenes within the area selected, the

sufficient separation of the opposing forces before operations commence will allow of initiative on the part of the commanders, and also of preparatory artillery fire. The strength of opposing forces is to be estimated by squadrons, battalions, or batteries, or in the case of smaller bodies (when detached as such under their proper commanders), by troops, sections or guns, half battalions, companies, half companies, or sections, and not by their actual effectives. No bugles or trumpets are to be sounded, except by order of the *umpire-in-chief*. Cavalry operating on a public road will not move faster than the *trot*, and must be *halted* or turned about at 50 yards distance from any of the opposing force it meets. When patrols or scouts of opposing forces meet, those that are supported by superior formed bodies within reasonable distance will be allowed to proceed; those belonging to the opposing force will be sent back to their nearest support.

To the General Rules for the Umpire Staff important additions have been made; but space does not admit of further quotation. A syllabus of Physical Training and of Barrack-room Instruction by sergeants is given in an Appendix.

AUSTRIA-HUNGARY.—The Austro-Hungarian manœuvres commenced on the 1st September and ended on the 23rd, having been carried out in the presence of the Emperor, and under the supreme command of the Chief of the General Staff, Baron von Beck. They began with cavalry operations. Then came the corps manœuvres from the 6th to the 10th; next the fortress till the 16th; and, lastly, the Hungarian. The country over which the cavalry worked was gently undulating and was well suited for the purpose. At Komarno nearly seventy squadrons and three horse artillery divisions were assembled. Each day there was an independent idea, and fresh grouping of the troops in order to give as much variety as possible.

The corps manœuvres, in which the 10th and 11th Army Corps were engaged took place between Przemyśl and Grodek. The 10th was commanded by Captain General Galgoczy, and the 11th by Lieutenant Field-Marshal Count Schulenburg. All the arrangements as nearly as possible resembled those of real war. On the 6th, at noon, the two opposing forces came within striking distance, and continued to be so until the end of the operations. The 10th or West Corps stood, on the 6th, close to Przemyśl, and was ordered to meet and throw back a column of the enemy marching thither. The 11th Corps was, on the other hand, ordered to advance rapidly on Przemyśl. On the 11th September the Emperor addressed, for nearly two hours, a meeting of commanders and umpires, reviewing the course of the operations, and expressing his satisfaction with their instructive character.—*Militär-Zeitung*.

The Fortress Manœuvres in Galicia, which took place last month, were full of interest and instruction. They were held in the neighbourhood of Przemyśl, and were attended by the Emperor of Austria during all the six days for which they lasted.

Their object was to demonstrate the effect of heavy ordnance against permanent fortifications, and to ascertain how far it might be possible to use balloons with advantage in fortress warfare. The latest improvements in field railways were also tested, and the heaviest guns were transported by their means.

The Emperor arrived at the headquarters of the force on the 11th September, and afterwards inspected the positions. He then observed the operations which continued during the night. These consisted in the building and arming of batteries, which, notwithstanding very bad weather and a sortie by the defenders, were completed and ready to open fire next morning.

The above performance, at any time a remarkable one, must be regarded as still more so owing to the fact that a large portion of the attacking force had arrived only a few hours before from the annual army manœuvres.

Early on the 12th the troops were withdrawn out of range, and at 8 a.m. the defenders opened fire with shell from their permanent works, as well as from the intermediate batteries which were built during the night against a portion of the attacking position. Cease firing was ordered by the Emperor at noon, and he afterwards inspected the works which had been under fire. It was shown that, although the works of the attack had been well covered from the view of the fortress, the artillery of the latter had obtained good results, not only by its accurate fire, but by its correct observation, in which latter the balloons assisted.

On the night of the same day the Emperor was present in the batteries of the defence, which again took up the fire after total darkness had set in. This fire was delivered in the midst of a severe thunderstorm, but was not allowed to continue long as the troops required rest.

The 13th was a day of rest. On the 14th the Emperor observed the effect of modern fire on the permanent works of the defence, and on the 15th preparations were made for the storm which was carried out next morning after the mines preparatory to it had been sprung. The Emperor expressed perfect satisfaction with all he had seen, and left on the same day for Vienna.—*Militär-Zeitung*.

FRANCE.—The *Journal Officiel* gives the following details of the transport of the troops by rail, in connection with the recent manœuvres :—Of the forty trains which were required for the conveyance of the troops, thirty-two started from the stations of Angoulême (Etat), Châteauneuf, Jarnac, or Cognac, and accommodated 866 officers, 21,645 men, 873 horses, and 114 carriages or waggons. The total number conveyed by rail was 30,000 of all ranks, including 1,160 officers. On September 18th there were entrained and sent off from the Jarnac station alone (at which the average number of passengers is not more than 250 daily) 9,170 of all ranks, including 341 officers, also 191 horses. The necessary rolling stock for the conveyance of the troops consisted for the stations of Cognac, Jarnac, and Châteauneuf alone of 585 covered waggons, 472 of which were fitted for the accommodation of the men, 37 carriages for officers, 62 trucks, and 48 waggons for the horses—in all, 732 vehicles. All the *matériel* had been concentrated by September 16th at the stations of Rochefort, Aigrefeuille, Niort, Fontenay-le-Comte, and Saintes, and the trains at these stations were so arranged that they could be sent off to the places where they were to take up the troops, etc., as soon as the exceptional movement of trains on the day of the review, September 17th, over the single line from Brillant to Châteauneuf had come to an end. When it is remembered that the number of trains passing over the single line from Brillant to Angoulême does not usually exceed sixteen daily in both directions; that the maximum number of trains on a single line in time of mobilisation is only estimated at eighteen each way; and that on September 18th no fewer than sixty-two trains passed over the lines from Brillant to Angoulême, the strain put upon the State railways can be imagined.

GERMANY.—The General Idea of the German Imperial Manœuvres included the attempted relief of a portion of the West, or Saxon, Army, which was supposed to be shut up in Breslau. This relief was to be effected by Prince George of Saxony, who marched for the purpose from Dresden on the 7th September. The East, or Silesian, Army, under Count Waldersee, had the task of intercepting Prince George before reaching Breslau.

On the 9th September the two armies came into contact for the first time, the engagement being general along the line, and the West Army retaining an advantageous position at the end of the day.

On the 10th the right wings of both armies assumed the offensive, the consequence being that the left wing of the one was pushed to the North-West, and that of the other to the South-East.

On the 11th the Emperor took command of the Silesian Army at Weissenberg, East of the Löbau river, the 9th and 10th Divisions being on the North. West of the town, the 12th on the plain behind it, and the 11th in the neighbourhood of Lautitz, while the Cavalry Division was on the left wing. The Saxon Army intended to continue the march of the previous day, but was met by the Silesians, who, principally owing to their well-posted artillery, drove back the Saxon left wing on Hochkirch.

On the 12th the Emperor ordered that, although the attack on the West Army had been well carried out on the day before, the issue of the battle was to remain undecided, as the state of the weather and the land made operations extremely difficult for both sides. The Emperor then departed to keep another engagement, and left Count Waldersee in command. It was subsequently ordered that a corps was supposed to be on the march, for the purpose of supporting the West Army in its advance on Breslau. Prince George thereupon determined to attack Count Waldersee, and the latter, being in a rather too forward position, withdrew into a stronger one in which the artillery was again very well handled. Soon after the two armies had met, the order was given to cease firing. That was about half-past ten in the morning, and the troops had been on foot for some four or five hours.

The manœuvres which thus came to an end were instructive and well executed. The health as well as the conduct of the troops was excellent, notwithstanding the unusually bad weather, and the Emperor repeatedly expressed his great satisfaction with the manner in which all ranks performed their duty.—*Neue Preussische Kreuz Zeitung.*

ROUMANIA.—The re-organisation of the field artillery, which was commenced last year, is now complete. That branch consists of eight divisional and four army corps regiments. Each divisional regiment when mobilised has six mounted batteries divided into two groups, two sections of artillery ammunition, of which one is with the park of the army corps, and two sections of infantry ammunition, of which one is likewise with the corps park.

Each army corps regiment when mobilised has five mounted batteries and one horse battery, divided into two groups, two sections of artillery ammunition, of which one is with the corps park, and one section of "repairs" also with the corps park.

At the instant of mobilisation all the regiments form a dépôt including a battery of instruction. Therefore, the artillery of each mobilised corps consists of staff, two divisional, one corps artillery, and a park. Each divisional artillery has a staff, two groups of three batteries and a staff, and a group of ammunition sections consisting of a staff, one artillery section, and one infantry section. The corps artillery has a staff, two groups of batteries, of three field, and two field and one horse batteries, respectively, and a section of artillery ammunition. The artillery park has a staff, three sections of artillery ammunition, two of infantry, and one of "repairs."—*Revista Artileriei.*

RUSSIA.—An interesting operation was conducted during the night of the 20th August, near Lublin, under the direction of General Chouvaloff, commanding the Warsaw district. The opposing forces were two brigades of infantry, but the attack had at its disposal two groups of field batteries, with a battery of horse artillery, while the defence had only a group of field artillery. The mission of the defence was to cover the town of Lublin, which was to be attacked by the enemy, then at a distance of sixteen versts. The latter marched at midnight so as to attack at daybreak, but was so hindered by the inherent difficulties of night marching that it was daylight when it approached the advanced posts of the defence, and the battle took place in broad day. The attack did not even succeed in deceiving

the defence as to his real point of assault. The general, in his criticism, pointed out numerous tactical mistakes that had been committed, especially the slowness of the march made by the attack. The only benefit gained is a new proof that chances of an unforeseen character have a powerful influence on night operations.
—*Le Spectateur Militaire*.

SWITZERLAND.—The Artillery Experiment Committee recently made trials with a view to ascertaining the velocity and pressure obtained with three Swiss powders, and with Nobel's powder as used by Krupp. The firing was with shell at 2,000 metres and with shrapnel at 1,400, 2,000, and 2,400 metres. The gun was mounted on a Krupp carriage with a carefully adjusted platform. Krupp shell of 6c.5, weighing from 4.4 k.g. to 4.5 k.g., and shrapnel of 4.6 k.g. were fired; metallic cartridges were used, containing from 90 to 120 grammes for the three Swiss powders, namely, one of Worblaufen and two of Troisdorf. The Nobel cartridge contained 100 grammes. This powder is composed of leaflets 6 millimetres square, with a thickness of $\frac{1}{10}$ millimetre.

The initial velocities and pressures were duly measured by chronograph and crushers, and the result was recorded by the committee as follows:—"The Nobel powder imparted to the projectile, with the gun used at the trials, a greater velocity, under the same pressure, than the Swiss powders employed."
—*Schweizerische Zeitschrift für Artillerie und Genie*.

NAVAL AND MILITARY CALENDAR.

SEPTEMBER, 1896.

- 2nd (W). Launch of the first-class battle-ship "Rotislav" at Nikolaieff, for the Russian Navy.
- " " Floating out at Portsmouth of the new first-class battle-ship "Caesar."
- 6th (S). Capsizing of the galley of H.M.S. "Satellite" at Unalashka Island, Behring Sea; Lieutenant G. Heyman, R.N., and seven men drowned.
- " " Silaba's stronghold, Matabeland, captured by force under Major H. M. Ridley, 7th Hussars.
- 7th (M). Capture of Mvidi's stronghold by Major Ridley's party.
- 8th (Tu). First-class battle-ship "Hood" re-commissioned at Malta.
- " " Commencement of German Army Manœuvres.
- 9th (W). Commencement of French Army Manœuvres.
- 11th (F). Capsizing of the galley of H.M.S. "Narcissus," at the Fish River, Grossevitich Bay, Russian Tartary; Captain H. B. Lang, R.N., and four men drowned.
- " " 4th Hussars, under Lieut.-Colonel W. A. Ramsay, and 3rd Field Battery, R.A., sailed from Southampton for Bombay.
- " " Aldershot Army Manœuvres concluded.
- 12th (Sat). German Army Manœuvres concluded.
- 14th (M). Matabele chief Weenya, captured by force under Major H. M. Ridley, 7th Hussars, and afterwards shot.
- " " Commencement of Army Manœuvres, S.E. District.
- 15th (Tu). Skirmish between a party of Egyptian cavalry and a Dervish raiding party, near the Island of Arduan; their leader Abdelal killed.
- 16th (W). Launch of first-class armoured cruiser "Christobal Colon" from the yard of Messrs. Ansaldo, at Genoa, for the Spanish Navy.
- 17th (Th). Floating out of the new first-class battle-ship "Illustrious" at Chatham.
- " " Egyptian Expeditionary Force arrived at Barji from Fereig.
- 18th (F). Matabele chief Mtigeza surrendered at Fort Charter.
- " " Egyptian Expeditionary Force arrived at Tumbus from Barji.

- 19th (Sat). First-class cruiser "Hawke" re-commissioned at Malta.
 " " Egyptian Expeditionary Force arrived at Kerman from Tumbus; and Hafir successfully bombarded.
- 20th (S). Hafir captured by Egyptian force under the Sirdar; Dervish commander dangerously wounded.
 " " Matabele attacked in the hills near Gonee by British force.
 " " Bombardment of Dongola by Egyptian gun-boats; capture of treasury and records.
- 21st (M). Conclusion of Army Manœuvres, S.E. District.
- 22nd (Tu). Egyptian Expeditionary Force arrived at Zowerat from Hafir.
 " " Tsar of Russia arrived in England on a visit to the Queen.
 " " Commencement of Austrian Army Manœuvres.
 " " Two-hundred Matabele and Induna Umgeza surrendered at Fort Solousi.
- 23rd (W). Launch of first-class armoured-cruiser "Carlo Alberto" at Spezia, for the Italian Navy.
 " " Capture of Dongola by Egyptian Expeditionary Force under the Sirdar; 200 Dervishes killed, 900 prisoners.
 " " 9th Lancers landed at Durban, and proceeded to Pietermaritzburg.
- 24th (Th). 1st Batt. Royal Scots Fusiliers, under Lieut.-Colonel J. H. Spurgin, and 30th Field Battery R.A., left England for India.
 " " Conclusion of Austrian Army Manœuvres.
- 25th (F). First-class cruiser "Royal Arthur" paid off at Portsmouth.
- 26th (Sat). 1st Batt. North Staffordshire Regiment left Dongola for Cairo.
 " " Severe fighting in Mazoe River between British and Matabeles.
- 30th (W). First-class cruiser "Edgar" paid off at Plymouth.
 " " 1st Batt. Northumberland Fusiliers, under Colonel H. A. Cherry, embarked for Gibraltar.

FOREIGN PERIODICALS.

NAVAL.

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens*. No. 10. Pola and Vienna : October, 1896.—“ Naval Incidents during the Franco-German War of 1870-71.” “ An Electric Motor for a Submarine-boat.” “ H.I.M. torpedo-boat ‘Viper.’ ” “ The Water-tube Boilers in the New Dutch Cruisers.” “ Draught of Water and the Speed of Ships.” “ The Return of the Nansen Expedition.”

FRANCE.—*Revue Maritime*. Paris : September, 1896.—Has not been received up to time of going to press.

La Marine Française. Paris : 10th September, 1896.—“ The German Navy ” (continued). “ The English and Cruiser War.” “ The Defence of the North, having regard to the French and German Manœuvres.” “ The Naval Forces of Chili and the Argentine Republic.” “ The Franco-Brazilian Border Dispute ” (continued). 25th September.—“ Submarine Navigation.” “ France, Spain, and the United States in the Antilles.” “ The Question of Marine Boilers in England.” “ The Political and Diplomatic Fortnight.” “ Counsels of Prudence.”

Le Yacht. Paris : 5th September, 1896.—“ Naval Constructions in Germany.” “ The Mercantile Marine, Home and Foreign.” “ The new Chilian and Turkish Torpedo-Avisos.” “ A Signal Apparatus for Yacht Racing.” 12th September.—“ Some Remarks on a Pamphlet entitled ‘Considerations on the Battle of the Yalu.’ ” “ Launch of the new battle-ship ‘St. Louis.’ ” “ The Inquiry into the Loss of the ‘Drummond Castle.’ ” 19th September.—“ Naval Tactics.” “ Some Remarks on a Pamphlet entitled ‘Considerations on the Battle of the Yalu.’ ” (continued). 26th September.—“ The United States Navy ” (continued). “ Premiums and Subsidies paid to certain foreign Merchant Navies.”

Le Moniteur de la Flotte. Paris : 5th September, 1896.—“ Petroleum Fuel.” “ The ‘Vautour’ Incident.” 12th September.—“ Francis Garnier.” “ The D’Eckmuhl Lighthouse.” “ The Visit of the Tsar to France.” 19th September.—“ On Naval Construction.” “ The Visit of the Tsar to France.” 26th September.—“ To the Lieutenants de Vaisseau.” “ Visit of the Tsar to France.”

GERMANY.—*Marine Rundschau*. Berlin : October, 1896.—“ Public Maritime Law in War.” “ Some Observations on Graphic Spherical Trigonometry.” “ Detonating Explosives and Smokeless Powders.” “ Heating Experiments with the Dürr System of Water-tube Boilers.” “ The ‘Arcona’ Class.”

ITALY.—*Rivista Marittima*. Rome : October, 1896.—Has not been received up to time of going to press.

L'Osservatore Navale. Palermo : August and September, 1896. Has not been received up to time of going to press.

SPAIN.—*Revista General de Marina*. Madrid : September, 1896.—“ The Importance of the Study of Maritime History.” “ The Defence of Coasts.” “ The Cellular Sub-division in Ships-of-War.” “ On the Employment of Petroleum.” “ The Efficacy of Artillery in Naval Battles.” “ Sirens in Lighthouses.” “ The Colour of the Water in Lakes and the Sea.” “ Latest Advance in Artillery and Armour Plating for Ships.” “ On the Stability of Vessels of Light Draught in Heavy Seas.”

MILITARY.

AUSTRIA-HUNGARY.—*Militär-Zeitung*. Vienna : 4th September, 1896.—“ Peace Congresses.” “ Cavalry against Cavalry.” 12th September.—“ Rifle

Clubs." "The Imperial Manœuvres in Galicia." 20th September.—"The German Language in the Cadet Schools." "Fortress Manœuvres in Galicia." 28th September.—"The Opening of the Iron Gates." "The Manœuvres at Csakathurn."

Organ der Militär-wissenschaftlichen Vereine. Vienna: August, 1896.—"From the Franco-German War of 1870-71" (with maps).

Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens. Vienna: August and September, 1896.—"Smokeless Powder for Practice and Sport." "Spanish 7.5-centimetre Q.F. Mountain Gun."

FRANCE.—*Revue du Cercle Militaire.* Paris: 5th September, 1896.—"The German Ministry of War." "The Retirement and Pension of German Officers" (*continued*). "The Programme of the Manœuvres of the 12th and 17th Army Corps." 12th September.—"Letters from Madagascar." "Skobelev's Opinion on the Lance." "Field Service." "Military Songs." 19th September.—"Peter the Great." "The Matabele Insurrection." "Field Service" (*concluded*). 26th September.—"Letters from Madagascar" (No. 2). "Peter the Great" (*concluded*). "The Matabele Insurrection" (*concluded*).

Journal des Sciences Militaires. Paris: September, 1896.—"The Chimera of Disarmament," by General Lewal. "The Train in the English Abyssinian Campaign" (*continued*). "Critical Study on the Operations of the 14th German Corps in the Vosges, etc., in 1870" (*continued*). "A Campaign of Turenne." "Notes on Suvarof and Lecourbe."

Revue d'Artillerie. Paris: September, 1896.—"On the Formations and Method of Combat in Foreign Infantry" (*continued*). "The Artillery at the beginning of the Wars of the Revolution" (*continued*). "Notes on the Secondary Functions of Derivation."

Revue de Cavalerie. Paris: September, 1896.—Has not been received up to time of going to press.

Le Spectateur Militaire. Paris: September, 1896.—"Seniority and Selection." "Decorations" (*continued*). "The Recruiting Staff."

Revue Militaire de l'Étranger. Paris: September, 1896.—"Mountain Manœuvres." "The English Expedition to Ashantee." "Military Organisation of Greece." "Remounts for Italian Officers."

Revue du Genie Militaire. Paris: September, 1896.—"Cordage for Bridging." "Flanking Intervals of Forts." "Development of Armoured Fortifications in European States." "German Regulations for the Construction of Rifle Ranges" (*continued*).

Revue du Service de l'Intendance Militaire. Paris: July and August, 1896.—"Analyses of French and Foreign Corn." "Note on the Nutritive Value of Flours." "Analysis of Rock Salt from the Salt Rock of the Djebel Sahari."

GERMANY.—*Militär-Wochenblatt.* Berlin: 2nd September, 1896.—"New Equipment for the Swiss Infantry." "Scharnhorst's Relinquishment of the Brunswick Service." "Military Telegraphy in France." 5th September.—"War Studies." "Artillery Practice Schools in Austria-Hungary." 9th September.—"The New Arrangements in the Schools of Musketry." "War Studies" (*concluded*). 12th September.—"The Development of the German Fortress and Siege Artillery in Material, Organisation, Training, and Tactics, from 1875 to 1895." "The Counter-attack of Infantry in the Defence." 15th September.—"Alteration of Russian Shooting Regulations." 16th September.—"The Development of the German Fortress and Siege Artillery in Material, Organisation, Training, and Tactics, from 1875 to 1895" (*concluded*). "Emergency Ration in the United States Army." 19th September.—"Modern Repeating Weapons." 23rd September.—"The Strategic Chief Command." "Modern Repeating Weapons"

(concluded). 26th September.—"The Railway to the Seat of War on the Upper Nile." "Change in the Period of Volunteer Service in Russia." 30th September.—"The New School Targets." "French Horse-breeding in 1895."

Jahrbücher für die deutsche Armee und Marine. Berlin: September, 1896.—"The Battles of the German Army on their Forward March in August, 1870; particular attention being given to French sources and personal reminiscences" (concluded). "A Patrol to the Caucasus" (concluded). "The Rising in Cracow and West Galicia in 1846." "The Solution of the Pamir Question in Central Asia."

Deutsche Heeres-Zeitung. Berlin: 2nd September, 1896.—"The Artillery in Battle." "Practical Considerations on Interior and Exterior Strategic Lines" (continued). 5th September.—"The Practical Training of Artillery in France and Germany." "Practical Considerations on Interior and Exterior Strategic Lines" (continued). 9th September.—"The Practical Training of Artillery in France and Germany" (concluded). "Practical Considerations on Interior and Exterior Strategic Lines" (continued). 12th September.—"Belgian General Staff Officers." "Practical Considerations on Interior and Exterior Strategic Lines" (continued). 16th September.—"The Partisan Friedrich von Hellwig and his Expeditions." "Practical Considerations on Interior and Exterior Strategic Lines" (concluded). 19th September.—"The Partisan Friedrich von Hellwig and his Expeditions" (concluded). "Horse-racing and its Effect on Military Interests." 23rd September.—"The Movement of Armies." "Horse-racing and its Effect on Military Interests" (concluded). 26th September.—"The French Autumn Manœuvres." "Studies in Applied Tactics." 30th September.—"The German Fortress and Siege Artillery." "Studies in Applied Tactics" (concluded).

Neue Militärische Blätter. Berlin: September, 1896.—"On Warlike Training in Field Hospital Service at the Manœuvres." "The Cavalry." "General Gourko's Advanced Guard in the War of 1877-78" (continued). "Gibraltar."

ITALY.—*Rivista di Artiglieria e Genio.* Rome: August, 1896.—"Remarks on the Instructions for the Employment of Infantry as Engineers." "General Wille's Work on Arms and War Material." "The Measurement of the Pressures of Explosives by a Spring Manometer." "History of the Development of the German Fortress and Siege Artillery."

RUSSIA.—*Voënnii Sbornik.* St. Petersburg: August, 1896.—"Questions of Strategy" (continued). "What is the True Meaning of Independent Command in War?" (continued). "The Moral Element at Sebastopol." "Austrian Opinions on the Russian Regulations." "Operations of General Gourko's Advanced Guard in the War of 1877-78" (continued).

SPAIN.—*Memorial de Ingenieros del Ejército.* Madrid: September, 1896.—"Central Electrical Stations" (concluded). "Documents, etc., for a Biography of General Sebastián Feringán y Cortés" (continued). "Some Remarks on the Organisation of the 'Sappers and Miners.'"

Revista Técnica de Infantería y Caballería. Madrid: 1st September, 1896.—"The Soldiers of America" (concluded). "Ramón Muntaner, Warrior and Historian" (continued). "The Study of War." 15th September.—"Captain-General or Commander-in-Chief?" "The Spanish Soldier: Distinctive Qualities." "Ramón Muntaner, Warrior and Historian" (continued). "The Army of the Philippines: its Origin and Organisation." "Chronological Account of the Wars in America between 1809 and 1824." "The Study of War" (concluded). "Military Hygiene in Cuba" (concluded).

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: 15th September, 1896.—"Notes on the Artillery at the National Exposition." "Maps at the National Exposition."

NOTICES OF BOOKS.

Signalling Instructions, 1896. Published by Authority. Price 9d.

This long promised book, which has just made its appearance, is a new edition of the "Manual of Instruction in Signalling." It is more bulky than its predecessor, but the additions are welcome and more than counterbalance the slight disadvantage of additional bulk. The book is written clearly and concisely, and all unprofitable matter appears to have been removed. Amongst the additional matter appearing in it, may be mentioned the directions for remedying temporary defects in the heliograph, the causes of failure to communicate with it, and the laws of light; all of which should prove of great assistance to signallers in the field. The cipher tablet and its accompanying instructions have fortunately disappeared, for the instrument for some years past has ceased to be employed. One of the most important innovations is in the standard rates for signalling now laid down. The School of Signalling has very wisely come to the conclusion that time is saved and greater accuracy attained by sending words at reasonable rates. Officers must frequently have seen messages sent at rates at which it is physically impossible to decipher the words without endless repetitions. The unhealthy rivalry of Jones trying to send a few seconds faster than Brown at the expense of clearness will, it is hoped, be a thing of the past. The introduction of the semaphore as a means of signalling in the army is a useful one. It supplies a want that has long been felt for establishing communication at short distances across natural obstacles, such as rivers or ravines, between boats of a river expedition, or from hills accessible with difficulty. It was usefully employed to a great extent at Suakim in 1885 and in the Nile expedition of 1886. The errors that have arisen in sending figures and collating them by the short numerals, many of which are very similar, should be eradicated by the new method of collation: the symbols used are now entirely different, and they involve no further study, as they are invariably used by the signaller when sending "time." Chapter XVI. gives the new method of inspection, which seems calculated to encourage efficiency and the habit of thought. Instead of the automatic and monotonous method of reading tests consisting of isolated letters, messages will in future be sent similar to those with which signallers have to deal in the field. Every man has to show himself efficient in any duty that may fall to his lot; each in succession, reading, sending, etc. A wise provision has been made against the misapplication of signalling at distances where messages would be better exchanged by orderlies, and it is laid down that only in exceptional circumstances should signalling be employed at distances under 1,000 yards. A chapter has been added on map reading—a very important branch of a soldier's training, a thorough knowledge of which is inseparable from long-distance work. The use of authorised abbreviations is now permitted, provided the words they represent are written in full on the form for delivery. Considering that for some time past abbreviations have been used in the field, it seems a good plan to have a certain number of recognised words. It at all events prevents the introduction of irresponsible abbreviations for which there is no authority.

The value of observatories for signalling purposes is explained on page 65. They economise scouting, afford a look-out post, convenient position from which to work a search-light, and a signal station from which ground vapours can be escaped.

Excellent diagrams of the lime-light and hand-lamp, full instructions for the

use and care of the telescope, and directions for establishing a line of stations deliberately have been inserted, together with signalling arrangements for war, tables of equipment, and a carefully written flag drill and index. Lieut.-Colonel Kennedy, the Inspector, and Major Rhodes, the Assistant-Inspector of Signalling, have between them produced a really useful book, which brings signalling thoroughly up to date.

Les Écoles de Cavalerie. By BARON DE VAUX. Paris: 1896. Price £1 10s.

The Baron de Vaux's work, "*L'Équitation en France*," gives the history of the Cavalry Schools of France, their commandants, etc., with many plates and etchings. To those interested in horsemanship it is well worth perusal.

He considers the present teaching at Saumur (which is our Canterbury Cavalry School on a very large scale) to be too much in the sporting line, and the teaching of the breaking, training, and conditioning of remounts is not sufficiently attended to; consequently the French cavalry cannot gallop any distance, and their riders cannot make the most of their mounts, as they are not well trained.

The main question appears to be whether this historical school and its teachings sends the officers back to their regiments well able to instruct both the recruits and remount horses, and to keep up the standard of the riding of their regiments; one may infer that in the baron's opinion it does not.

The author is far from being against the "*Équitation Sportive*," which requires of the riders courage and vigour—qualities so important to cavalry; but this kind of riding, he writes, ought to be the pinnacle to arrive at after the riding instructions, including the breaking, training, and conditioning of horses destined for either officers or men, have been thoroughly mastered.

Baron de Vaux concludes his interesting account with the following sentence:—"The Science of Equitation is one of general interest, and cannot perish. Forgotten, looked down on at present, she will know in a future not far off how to triumph over the indifference and the obstacles imposed on her."

Notes on Organisation and Equipment. By Lieut.-Colonel BRUNKER, p.s.c. London: Clowes and Sons, 1896. Price 2s. 6d.

This is an excellent summary of the general principles underlying the organisation of our Service, compiled from the existing regulations and the Army-Book of the British Empire, and should prove invaluable not only to candidates for examination in the new subject (g), Organisation and Equipment, but to the far wider sphere of officers of all arms who require to keep before them in their daily work the outline of the whole system of which they form a part. Hitherto, it has been a task of almost insurmountable difficulty to the individual to disinter the essentials from the mass of orders and regulations which are yearly published, without a knowledge of which friction in staff duties is certain to arise; and the best thanks of the Army are due to Lieut.-Colonel Brunker for the able manner in which he has smoothed its path.

History of the Post Office Packet Service, between the Years 1793-1815. Compiled from Records, chiefly official, by ARTHUR H. NORWAY. London and New York: Macmillan and Co., 1895.

It is, without doubt, a truth that to all, save a few whose delight it is to ferret out records of our glorious sea past, the name of the Post Office Packet Service "brings nothing to our minds, recalls no train of recollections, stirs up no dim memories." For eighty long years its records have lain neglected, and have perished either through carelessness, or have been of purpose destroyed as possessing neither use nor interest. The more then is the public indebted to Mr. Norway for evolving, by painstaking research, from these fragmentary

records of the past a history of a service that has had no small share in adding to the lustre of our naval glory.

In describing the nature and functions of the Packet Service, the author has confined himself in the main to a single station—Falmouth—and rightly so, for it was one of such magnitude and importance as to almost, if not entirely, dwarf the other stations. Dover, from whence the Calais Packets sailed, was closed during every French war. Packets sailing from Harwich, or Yarmouth, maintained the Postal Service with Holland and Northern Europe, and navigated stormy and dangerous waters that called forth all the skill and hardihood of those employed on the service. Their story, however, affords but little variety of incident, and it was only when "the Continental system established by Napoleon began to force the exclusion of English vessels from every seaport which his hand could reach, and, like a creeping paralysis, the hostile influence mounted steadily up the shores of the North Sea and the Baltic—it was only then that the Harwich Packets began to serve as counters in a game of exceptional difficulty." With Ireland postal communication was maintained by the Holyhead route and by boats running between Milford and Waterford, and Portpatrick and Donaghadee. Beyond the dangers incidental to occasional rough and stormy passages these waters were safe, and the doings of the Packet Services traversing them offers nothing of exceptional interest. But Falmouth was the centre of the ocean mail service as it then existed. The speedy and well found sailing-ships that left its bay were in truth the progenitors of the great ocean steamers that to-day carry our mails into every corner of the globe. The wearied mariner on a coasting craft, "rough with the clotted drift that drives in a Northern breeze," must have looked at her poop lantern with much the same feelings that stir the sailor man on an ocean tramp of to-day, when he sees "some damned liner's lights go by like a grand hotel." From Falmouth packets sailed West and East, over the Western ocean to Halifax, New York, the West Indies, and Brazil; South and East to Lisbon, San Sebastian, the Mediterranean, and the Levant. Weekly sailed the Lisbon Packet immortalised by Byron in the "Lines addressed to Mr. Hodgson," written from Falmouth Roads on the 30th June, 1809:—

" 'Heyday! call you that a cabin?
 Why 'tis hardly three feet square:
 Not enough to stow Queen Mab in—
 Who the deuce can harbour there?' "
 'Who Sir? plenty—
 Nobles twenty
 Did at once my vessel fill.'—
 'Did they? Jesus,
 How you squeeze us!
 Would to God they did so still,
 Then I'd scape the heat and racket
 Of the good ship, Lisbon Packet.' "

That Falmouth was the head centre of the Packet Service is not to be wondered at, when we consider the many natural advantages which specially suited it for that purpose. So easy of access is its harbour that ships—even if those navigating them are unfamiliar with it—can enter it in the thickest of fogs, or the darkest of nights; and, once entered, the harbour affords the safest of anchorages and abounds with inlets where ships can lie practically immune from any weather. As a point of departure also its position is unrivalled, for "from no other harbour in this country can an outward-bound vessel clear the land so soon." A sailing-ship can leave it in any weather, except in the teeth of a strong East or South-East gale. Indeed, it was a rare event for outward mails to be weather-bound, and, as showing how easy it was for a good ship to clear the channel from Falmouth, the rule held "that the packets must put to sea, *whatever the wind was*, provided only that they could carry a double-reefed topsail."

Considerations of space render it impossible here to trace in detail the story of the organisation and characteristics of the service of which Mr. Norway is the just historian. To learn the difficulties which beset its administration, the abuses which existed, and the methods by which they were removed, the story of the great mutiny which broke out when private trade was suppressed—to learn these, and much else of interest, our readers must turn to the author's own pages. We can, however, touch briefly on the one characteristic that made the Post Office Packet Service almost in a sense a military service, and that was its liability to capture by, and its necessity of carrying armed defence against, the swarms of privateers by which the ocean routes were in war-time beset. No more gallant sea-fights are on record than some of those in which these armed mail-boats not only frequently beat off, but even sometimes captured, an enemy's ship vastly superior in gun power and *personnel*. It is true that there was a time when a suspicion of base dishonesty rested on the Falmouth Packet Service. When private trading was allowed it was not always unprofitable to be captured, and it was roundly hinted "that the officers who were the most often captured were the most quickly growing rich." Goods were insured for the double voyage out and home. Sold in the West Indies the purchase money could be remitted home by some safe channel. On the homeward route it was easy, and not incurring much risk, to surrender to the first French privateer met with. At the worst it meant a year or two in a French prison, and there was always the chance that the privateer would put them ashore in their own boats rather than encumber himself with prisoners. "When they once reached England they were safe from detection. They declared before the insurance company that the privateer had taken from them large quantities of goods which they had not succeeded in selling abroad, or which they had purchased there hoping to sell at home." They received from the insurance company the value insured, and pouched at the same time the amount they had effected by the sale. If, however, the story of the service is smirched by an incident, such as the surrender of the "Duke of York" while the enemy's vessel was still a mile distant from them, and before she had even fired a summoning gun, and if even "a boat was sent off to meet the privateer and to accelerate a surrender of which the seamen themselves speak as dishonourable and dishonest"; still as against each of the few incidents of this character, one could quote a dozen stories of gallant resistance against overwhelming odds, successful or unsuccessful. What tale, for instance, could be more thrilling than that which tells us how Captain Rogers, the gallant commander of the "Windsor Castle," not only beat off but captured a French privateer immeasurably his superior? Not only has its gallantry caused the fight to be embodied in the best of our naval histories, but the boarding episode in the story forms the subject of one of Drummond's finest pictures. To our mind, instances such as this speak volumes for the pluck and grit of the British sailor, for the simple reason that they were deeds performed by men who had not made the profession of war their trade. Amongst no class of the community will such achievements meet always with higher appreciation than from those of their countrymen who are by profession men-of-war.

This review of Mr. Norway's book is perhaps somewhat long, but it has been difficult to deal briefly with a work of such interest. The Services will indeed be grateful to Mr. Norway for having unearthed from the brown and dusty records of the Post Office, "not only the story of a piece of administrative work, as difficult and as useful to this country as any that has ever been carried through by patient effort, but also a whole series of naval actions, of which the Post Office was once proud, and of which Cornishmen are proud still, though they have forgotten the details of most."

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